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ABSTRACT

This report is an interpretative examination of on- and off-job sites as learning environments. It explores meanings that apprentices, workplace mentors, and technical and further education (TAFE) teachers develop and place on integrated training. Key insights from research on 32 apprentices, 21 host employers, and 6 TAFE teachers in South Australia are tested against counterpart samples: 76 apprentices, 59 host employers, and 120 TAFE teachers, in New South Wales and Western Australia. The report begins with the story of Mario, an apprentice, and Sam, a builder, to emphasize that this is a human story in an ordinary work context. Five main sections analyze the study's context and the learning environments constructed by the host employers (on job) and teachers (off job). They include the apprentices' experiences of these constructed learning environments, perceptions of the interstate counterparts on integrated training, and interpretations and conclusions. These conclusions are reached: the relationship between apprentice and workplace mentor is critical to apprentices' learning; each learning environment contributes valuably but differently to apprentices' learning; all participants play many roles; apprenticeship is a negotiated, constructed experience where developmental time is important; apprenticeship is a time of turbulence and tension; and squeezing learning out of work is a core competency in apprenticeship. (Contains 116 references; appendixes include instruments and 11 data tables.) (YLB)

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job

JUGGLING

THE MESSAGES

IN ON- AND

OFF-THE-JOB

TRAINING

Roger Harris, Peter Willis & Michele Simons
with Laura Underwood

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Learning the job

Juggling the messages in on- and off-the-job training

Roger Harris, Peter Willis and
Michele Simons
with Fiona Underwood

Research project funded by the
Australian National Training Authority

Adelaide 1998

Australian
National Training
Authority

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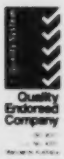

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- Leanne O'Brien for many long hours of faithful transcription of text from the SA interviews on audiotapes, and Sherri Bailey for the entry of the NSW and WA questionnaire data into SPSS software.

Executive summary

This study is an interpretative examination of on and off-job sites as learning environments. Its approach has sought to uncover constructs and explore meanings that apprentices, workplace mentors and Technical and Further Education (TAFE) teachers develop and place on their worlds particularly, in this case, on integrated training. The research aimed generally to establish a portrayal of integrated training as it is experienced, and specifically to:

- analyse the relative contributions of the workplace and provider environments to the learning of apprentices
- explore how they might best complement each other for the benefit of apprentices
- identify the enabling factors and barriers to establishing integrated models of training

The research design focussed primarily on an in-depth, qualitative study of apprentices employed in 1996 by the South Australian Housing Industry Association, their host employers and their building TAFE teachers. Key insights were then tested and complemented in an empirical investigation of counterpart samples of these three populations from two other Australian States. Links with literature findings were made wherever possible.

Participants included 32 apprentices, 21 host employers and six TAFE teachers in SA, as well as 76 apprentices, 59 host employers and 120 TAFE teachers in NSW and WA. The qualitative research in SA was undertaken by individual interviews of approximately one hour each on worksites, selected observations and focus groups. The quantitative research involved mail questionnaires piloted in Victoria and distributed to the three counterpart populations in the other two States.

The report begins with the story of Mario the apprentice and Sam the builder, to emphasise from the outset that this is essentially a very human story set in a very ordinary work context. There follow five main sections that analyse the study's context and the learning environments constructed respectively by the host employers (on job) and teachers (off job). They also include the apprentices' experiences of these constructed learning environments, perceptions of the interstate counterparts on integrated training and, finally, interpretations and conclusions.

The dominant theme throughout is of tension and turbulence. Most accounts of apprenticeship/traineeship are sanitised (and often best practice) versions downplaying or neglecting tensions inherent and endemic in such arrangements. At the roots of this tension is role conflict experienced by apprentices and host employers in particular, but also to a lesser extent by TAFE teachers and industry association co-ordinators. The roles of these actors are multifarious, and often it is the apprentice who is positioned in the middle as a mediator of, while simultaneously a client in, these different learning environments. 'Integration' is as equally, if not more, in the heart and mind of the individual apprentice as it is about structural arrangements, and is greatly dependent on many factors. Chief among these is the critical role of the workplace mentor, especially in a small business environment. A general conclusion is that such learning journeys as apprenticeships/traineeships are essentially about relationships, trust, commitment and common goals.

However, another significant theme is that the two environments—on and off-job—are sometimes complementary but often contradictory, and thus the apprentice pathway and experience becomes one of contestation. The goals, theories, methods and standards of the learning environments are quite different and this makes any notion of integrated training problematic. The degree of turbulence is dependent upon four key factors relating particularly to apprentices and workplace mentors—personality, training, industry experience and disposition towards learning. The core competency required of both actors is identified and labelled as 'squeezing the learning out of work'. The capacity of both actors to do this determines the extent to which the apprentice grows from novice to expert, and from dependence to self-directedness, with the capability of developing into the lifelong learner so essential in these rapidly changing politico-economic times.

The study also concludes that apprenticeship is a negotiated, constructed experience within different communities of practice, and that time is essential for the development of the apprentice as described. Over the apprenticeship period, the apprentices noticeably grew in self-direction and confidence, as well as in vocational competence.

The research found and documented that both on and off-job learning environments are important and make valuable contributions to apprentice learning, but that they contribute differently. This report concludes that each is deficient as a sole context for apprentice learning, and both are necessary for a balanced experience. The issue then becomes one of what are workable ways of making them complementary rather than contradictory. The report suggests factors that appear to be important in this quest for effective models of integrated training.

The report concludes with implications for training and learning theory, policy and practice, and research, and with a summary of the study's key findings and themes.

1 Prologue: Mario gets a start

Our report opens with a story. It is the story of Mario learning in his apprenticeship in the housing industry. It is a fictitious story, with two main purposes. One is to introduce significant themes that are then unpacked and elaborated throughout the remainder of the report. The second is to signal that we wanted this report to highlight right from the start the human dimension in learning. Our research has focussed on the meanings and experiences of apprenticeship as seen through the eyes of the three main groups closest to centre stage—the apprentices, their on-job mentors and off-job teachers—rather than from the perspectives of policy-makers, industry training advisory bodies and system administrators. It is about the interplay of meanings and interpretations—sometimes complementary, often contradictory—that very strongly characterise and add colour to vocational education and training. It is fitting, therefore, that this report should begin with the 'lived' experience of Mario . . .

First day

They don't all get such a good start. Mario has been farewelled by his mother with sandwiches and a new-for-the-occasion vacuum thermos from his father ('stainless steel like your uncle's, last you a lifetime'). He takes his precious ute with the muffler still needing fixing and his toolbox—secondhand from another relative—wedged in the back by his other junk, and finds the site in less than half an hour. He is a strong eighteen-year old, already taller than his father, with heavy chest and forearms. He plays Aussie Rules in his local club.

There isn't anything unusual on the site—poured slab and stacks of timber held together by flat steel tape; a power pole at the side with a temporary 240 link to the ETSA (South Australia's electrical supplier) lines outside. He knows building sites—half his male relatives are somehow tied up with building—but this is decidedly different. He is now a trainee apprentice with these builders, most of whom know or know of his builder relatives. He is no longer a visitor, a friendly outsider visiting his uncle the painter on one of his job sites; he is set to break in to the carpentry/building world, to become one of them. The boss, Sam, knows his painter uncle and has taken him on as a first year. Sam pays the Housing Industry Association an hourly rate for his services.

His ute looks right for an apprentice. Some of the chippies have pretty posh, four-wheel drives with bull and tow bars. That will come later. Mario turns off the FM blaster and gets out, picks up his toolbox and hard hat and edges past the truck backed in the drive way.

"Give us a hand."

The team is unloading materials for the frame—oddments too small for the fork lift. He drops his toolbox and turns toward the truck. No one is saying much. He grabs boxes of nails, steel metal fixtures, bolts and unnamed cardboard boxes and stacks them in the temporary shed. The boss signs the delivery docket. The truck starts and moves away.

Sam shakes his hand and says they are laying out the frame. He tells Mario to watch and that he will bring him in in a minute. The men are silent. Sam is checking the plans fixed to a table in the shed; then he and another man run their tape measures along the thick planks, sighting the edge to find straight ones with no knots for the top and bottom plate. Mario watches. He has his nail bag and hammer swung from its metal cradle and a new chisel and saw to cut the checks for the frame. Or so he thinks. Then Sam gets him to clear the site to make it easy to get the frames up. He rakes some of the dirt piles around the concrete slab, picks up the spikes used to hold the form work, picks up the form worksheets and stacks them near the shed.

He can see Sam with his tape marking the plates while he is finishing stacking the form work planks. The other man is already working his planks laid out on saw horses, sawing and chipping out checks for the vertical studs. Mario comes over; Sam pauses and points to the long plank marked with pencil lines:

"Follow Stan."

Stan looks up from his plank and grins. Mario moves over, looks and begins sawing and chiselling out the checks for the studs. The radio full of hit parade songs sends a cheerio to the office girls at Mitsubishi.

"They don't muck around," Mario thinks, his back hurting from the constant bending and tension, trying at least to keep in sight of Stan whose rhythmic saw and chip are moving quickly down his plank.

"Just watch the saw cut." Sam has come up behind him. "Not too deep or it will weaken the plate."

Mario focusses. Sam looks along the plank: "Okay. Stan, you can take off". Mario looks up. Stan is off to the other job.

"We weren't sure how you would hold up. Never know for sure. I thought you'll be okay. Your uncle is a good painter."

Mario tries to keep Stan's rhythm. Sam takes over from Stan who mounts his shining, navy blue, Toyota Land Cruiser and purrs off to the other site.

Sam settles into preparing the plates.

"Have you started trade school yet?"

Mario looks up. "Yeah, last week, we go in for our first block release in a couple of weeks."

"I'll put your times up on the shed so we can work around them. It can be a bit of a nuisance; we can't always arrange the work to fit in with when you are away, but we'll manage."

Mario is getting tired. The sun comes up hard and he is sweating under his hat. They break for smoko. Looks like the big work gang he had imagined is Sam and himself. Stan will be on the other site and Mario will be working with both of them depending on what is being done. Sam relaxes, his concerns percolate their talk.

"We've got a couple of weeks left on this job and the one where Stan is, and then here's hoping the tender I put in gets up. You know you are going against your mates—we all need the work. It's good having a useful apprentice—makes it worth it."

Mario feels pleased but Sam's stress worries him. He can feel the tension rubbing off on him. As he gets to know Sam, he will see more and more of the pressures—being permanently tired, increasing book work, tendering for jobs against more and more contractors, looking after insurance for the job and the workers. Sam pops antacid pills and smokes and complains, but Mario can see his whole world is carpentry and houses. When Mario rides with him later he is forever pointing out faults or good points about houses they drive past. Mario is not that obsessive, but Sam thinks he is and treats him as if he is.

"Maybe that's how you get to be so keen," Mario thought. "Might be when I am older and there's no football."

The plates are checked and the studs are cut. Sam gets Mario to help him stand the long ones up and hold them with a stay until they can tie in with the shorter sides. Mario's muscles are useful but Sam warns him to use his strength carefully.

"We use muscle while we've got it; it's useful but strong guys can do their backs—the other guys will give you bigger loads—and besides, if you put too much power on, you'll bust your tools and that'll cost you."

Mario's new steel-toed boots are pinching and his body is aching like at three-quarter time in the footy at school. The afternoon slows down. Sam goes to his shed to make phone calls while Mario nails noggins. The frame stiffens. Mario walks a little away and looks back at the erected frame. It looks tight, powerfully compacted.

"It is a pity to cover it up," Sam says. "Wait till you've got the rafters and ceiling joists on."

Sam knocks Mario off early, gives him a slap on the shoulder: "Good start".

By the end of the week, Mario's boots have stopped requiring two pairs of socks to protect his blisters. He leaves work early on Friday for a get-together with the other apprentices at the Housing Industry Association Centre. Brian, the HIA apprentice mentor, is saying hello and listening to the first day stories of his colleagues.

HIA debrief

"You ethnics stick together."

His mate Phil is small, fair and angry. Mario with his can is listening to less happy stories than his own. Phil complains about standing around doing nothing, like a prawn. Mick, looking even younger, says he had felt like a lost puppy dog tagging along. Mario grins: "you do look a bit like a whippet I suppose," and gets a clip over the ear.

The three can hear Anton complaining about being a shit kicker—"just carting stuff around".

Anton is slow moving, slow thinking, strong, reliable. He has been with a larger group of workers who have made him pay for the honour of being in their company.

Brian has a word about being accepted.

"You won't really know you are accepted until someone has yelled at you, someone has greeted you and someone has given you something to do."

He says to Anton,

"You know you're not stupid and they know you're not stupid. They are just roughing you up as a way of taking you in. And don't forget, with your TAFE knowledge which, despite the stuff you might hear, tends to be up to date, you might be a bit of a threat to some of the guys who aren't qualified."

Brian reminds them they are not labourers although they may be doing labourers' work on some occasions.

"You are carpenters-in-training, and some of those guys know that before too long you will be their boss. Anyway, you can expect to be a little roughed up on the first few days but not after that. I had better keep an eye on developments."

Anton doesn't seem really all that fazed underneath. He has done a year's pre-vocational training at TAFE. He has been looking forward to his first day on the job. Mario sips his can and asks Anton: "What's your boss like?"

"Oh well, that's different; the old man is good, real good. Welcomed me and introduced me to those guys who gave me a hard time. He was real keen and kind and strict as well. I might have been getting a bit of shit because it looked like I was getting special treatment. If those other guys leave me alone, I reckon I'll learn heaps."

Mario reports that the huge workplace with a cast of thousands he has been expecting is three men reduced to two. Brian nods.

"Lots of the building firms are a boss and a couple of workers."

Mario tells him how things have gone.

"Lucky you knew basic sawing and chisel work."

Mario says he thinks he could learn a lot so long as he can keep his end up with the work. He admits he wants to do well—even to impress like in his football—and that he feels he is being looked at, judged by Sam.

"I reckon that will be a test," he says.

"I'm so close to Sam we will have to get on. I can't hide and neither can he, and he's already mentioned how my work helps keep the company afloat. I think he kind of likes me but I reckon that could change. I think a lot is going to depend on whether I can do enough work to warrant the training (or telling and showing) he seems to have planned and the money I cost him."

"He sounds like a good bloke," Nick has arrived late. "Mine didn't even say 'hello', just gave orders and treated me like crap. I won't learn anything from him—I mean, what's he taking on an apprentice for if he's going to be so shitty?"

Brian grabs Nick and they talk at the other end of the room. Nick tells Mario a few days later that he has demanded a change and that he is not going back there to be treated like a kind of cheap labourer. Mario wonders what will happen. Just before the barbecue ends, Brian goes over the apprentice arrangements:

"Remember, apprentices aren't locked into one contractor but to the HIA. Things are different, bosses don't have apprentices long enough to act like bosses in the old days who treated apprentices like their sons—or daughters," he adds, "except there weren't any women carpenters in those days".

"This deal wants to treat you like motivated adults seeking learning in the work you do on the job and in TAFE. You can't expect to be looked after as much as previously. On the other hand, you don't need to wear as many hassles from bad temper or bullying. You're not there long enough so it's not worth your while to be putting up with too much aggravation on the number of work sites you could well be attached to. Things are different and you are more on your own. It's different from when I did my apprenticeship."

Mario is dog tired and falls asleep in front of the TV but not before he has a call from his painter uncle asking, and saying that Sam is all right but a bit of a worrier.

"Funny", he thinks when his mother has turned off the TV and chased him to bed, "this morning I was worried about being accepted into what Sam needs to get done. Now I am worried about whether I will learn enough at Sam's place".

Mario is stirred up by the apprentices' stories; he notices his mind moving, appraising Sam's worksite as a suitable place for him to trade his work for extra knowledge. It is going to be up to him.

"So I've got a start as Sam's apprentice, but then, Sam's got a start as my boss/trainer. We're both new to the game. I've got to make sure that I learn and that might mean that I encourage Sam to teach."

He grins, "No worries! Who am I kidding? I might wait a while before I get too smart".

The straight edge

It is only a week later when Mario starts to sweat. So far it is all okay. The frame is up and the rafters and purlins. Then they have to pour a verandah slab. This is one of Sam's specialities: he is a wood and concrete man. Mario is keeping up. He looks back to the crisp, sharp, smooth, even, dead-level floor on the framed house when he first arrived. When he knocked away the form ply, the slab had fairly gleamed at him. "We'll pour tomorrow." Sam is checking the form work, setting the reinforcing rods and mesh. There is going to be more concrete work on a new job: two stories with a first-floor slab. Mario is looking forward to concrete work but he knows almost nothing about it—not like wood work which is a little familiar. He is looking forward to it, but there is a tiny touch of apprehension.

The Readymix dumps its load—only one truck for the verandah—at 8am. Sam moves in smoothly, moving the heavy grey fluid into the corners under and over the mesh. Mario is in with him, his new gum boots baptised in the concrete.

He holds the screed and then Sam takes over patting, sliding, moving his worn straight edge across the piled cement like a conductor with a baton. Mario tries his hand—the straight edge dips and digs a little from Sam's level. Sam frowns. Mario tries harder, begins to sweat as he gouges another drag mark across the surface.

Sam moves in.

"We'd better move; it's going off and we need to do the topping."

Mario backs away and trips, sits hard on the wet cement, his bum cheeks imprinted in Sam's flat floor. Sam looks up and half frowns and hides a smile.

"Pity I can't leave it. Get us a bucket of washed sand and cement to make the topping."

Mario turns away—he knows nothing, bloody nothing, and the cement is going off—no time to do any more trial sweeps.

"Hurry up!" Sam is ready.

Mario's black mood swirls around him. He passes the bucket to Sam.

"No, chuck some yourself—like icing sugar on a cake—keep it even."

The grey powder and sand mix handfulls are broadcast over Sam's flat floor without Mario's bum imprint. Sam is watching. Mario says, "How do you know when it's ready?"

Sam is tired. "It's feel, feel—you have to get the feel. Use your fingers. Look—you have to feel the topping sucking the water off the cement."

He hands Mario a steel trowel—"Have a go; it's pretty well ready".

Mario picks up the steel trowel. Unforgiving bastard. It picks up and turns the powder topping into a kind of grey butter. Behind him to the side, Sam is pushing in larger and larger arcs. Mario's trowel digs in again and picks up. He pulls off the surface and takes a lump up. Sam looks up, trying to hide irritation.

"Go easy, you'll bugger up the floor—take it off like an aeroplane—one edge at a time."

Mario looks down. Cement on his hands, face and backside—some down his gum boots. He feels a huge surge of panic anger—nothing is happening; nothing is improving; nothing is getting done. Sam comes in behind him like a bloody ballet dancer; runs huge arcs across his patch—the cement acknowledges its marker and lies down to be massaged. Mario looks up.

"Leave it; leave it; let me do it, can't you? I want to get it right."

He's red faced and angry. Sam looks at him.

"Can't you see it's going off—look out!"

He sweeps past the fuming Mario and pulls the whole floor together with a dazzling display of speed and elegance. He is like some great conductor with his baton moulding the orchestra. Mario is convulsed with anger and now a touch of despair. His guts cramp and he turns away almost in tears.

Sam yells at Mario to wash the trowels and the mighty straight edge. He's weary; sits on a box and rolls one of his rare smokes.

"Made it," he said. "I thought you'd done concrete work. Kind of thought it was in the family."

Mario feels like a singer accidentally paired off with Pavarotti. Sam doesn't say much more. He is thinking about the next tender.

"I'll get Stan to help with the big slabs on the next job."

Mario goes home feeling miserable. If the frame work was okay, this has been a disaster and the whole concrete thing seems almost unexplainable—like riding a bicycle. He wonders whether Sam will still want him to work alongside him if he can't work the concrete at that speed and style.

Mario is right. Sam re-rigs his work and calls Stan for the slab. Mario spends the time setting the form work and the reinforcing rods and mesh. He feels out of the action, but Sam makes sure he is around when the pour comes. He gets Stan to do the donkey work while he snaps and pushes at Mario to get the feel of the concrete.

"You've got to feel it—you have to get to know concrete."

Mario feels like a child. Sam snaps at him, "Watch; no don't lift—light and easy; let the concrete come to the trowel".

"Damn."

Mario's strong arms are wooden—Sam bores in on him. Mario feels his temper rising. Any minute he will do something. Out of the corner of his eye he sees Stan methodically screeding the other end.

"Pay attention." Sam is getting shitty again as the concrete starts to go off—school's over.

Mario makes the tea and again washes the tools. His usual quietness is magnified. The talkback radio fills the silence. Sam and Stan are hot and tired. They drink the tea and eat the sandwiches. Mario thinks they are wondering if he is worth the effort. He tidies up the site almost like he has done on the first day. He doesn't want to lose his place but he doesn't know how he can get up to speed for these hot rods.

At his TAFE session the following week, one of the lecturers spots his discomfort.

"I thought Sam was a good boss."

"He is, but he can't teach concrete work."

"He's one of the best in the business."

"Well, he's no bloody help to me—he's so fast and he's always right and he comes up behind and does my work."

"OK, OK, OK. Slow down."

"Not a bloody module!"

Mario eyes the booklet with the disfavour of a man of action.

"Settle down."

The TAFE teacher frowns. "You need theory and slow practice—we have a group doing a slab under the shed, but it's no good until you know something about concrete."

"I don't need this. Where's the slab?"

"Not so fast. Sam's too fast for you and we're too slow."

"OK, OK, OK."

So Mario takes the module—chemistry of cement—viscosity, different mixes, boring, boring—Mario keeps his remarks to himself.

Under the big shade roof after smoko, he watches the metal and sand and cement turn in the mixer until it looks like grey cream. He stands by as the pour floods the form work and grabs the screed. It's only three metres by three so they can take it easy. Mario takes it easy.

Back at the job Sam has a funny smile.

"You are going to have your own floor to pour. It's for a bicycle shed behind that bloke's house. Rough finish but good. Can you handle it? I'll give you a start; it's smaller and not so public. You can take your time."

Mario says nothing—nods—and feels his guts together. He sets the form work—discovers it is bigger than Sam has said. The Readymix pulls in and Sam steps back. Mario feels his eyes in his neck. The phone rings in the truck. Sam turns away as Mario swings into action.

"Not bad, not bad. We'll make a concrete worker of you yet."

Mario is too tense to smile but he feels his gut let go.

"I'll just tidy these bits up."

Sam's delicate trowel turns Mario's good job into a great job. For the first time, Mario gets a different thought. Perhaps old Sam just needs to be better at least in some things. I suppose having apprentices could be a bit like the old bull and the young bull.

He goes home thinking about young bulls. He has the feeling that things might hot up a bit and Sam might drop the weights on him a bit more. Like lifting the high jump bar a bit higher past his comfort point. He gets the feeling that he is somehow being pushed into manhood with a straight edge.

The sieve of practice

The weeks settle. Mario fits into Sam's rhythms. His TAFE study gets easy, even interesting. He knows heaps from being able to shadow Sam. Sometimes the TAFE classes raise issues that Sam seems to have skidded over. Sometimes Mario finds it hard to raise these matters with Sam. He has begun to see Sam as a hot shot and less of an uncle figure—a bit more challenging and less familiar. Besides, Mario thinks Sam is pretty good at his trade and can see lots of ways in which he can learn from him. Unlike his restless mate Mick who is always thinking of different ways to do things and driving his boss insane with his constant questioning, Mario isn't nearly so creative or jumpy. He is a pretty steady, easy character, reliable and on the whole good humoured. He does like to improve things though and will sometimes time himself on a job to see how he is doing.

One of his TAFE teachers challenges him to think about how what he is doing fits into his career plan. Mario finds all such studied planning foreign to his nature but he is to be influenced by it eventually, though not for a while.

The football season takes him up. He trains and gets a game at centre half-forward with his school old boys' club. He gets a bit serious with Sarah his girlfriend but she wants to get really serious and he is not sure. If you're not serious at all, nothing much happens. If you get too serious, you will be settling down too early.

"Sounds like carpentry," says Mick, on one of their after-squash soul sessions.

"If you don't get a bit serious you don't really get the feel of the trade—if you're too serious you grow old too quick—you cut off your options."

Mick wants to go to Europe to see some of the old furniture techniques. Mario teases him about wanting to go to the moon to see how things are done there but he is secretly pleased that Mick is firing. Sometimes he is a bit reticent when Mick calls in on the job in case he runs his eye over his work and starts to make smart-arse comments about precision and accuracy. Mario knows for first fix he is about right and Sam agrees.

"Sometimes," he thinks, "Mick has become almost a bloody cabinetmaker".

He remembers when he met Mick at the timber shop picking up a load of frame timber for his boss. He was taking forever to get a load together, sometimes rejecting stuff that Mario thought was okay.

"What are you doing?," he said to Mick as another six sticks were rejected. "The wood's for a stud wall; we can have a few knots—it's not a piano top. Just so long as it's straight and the right thickness."

Mick would agree but you could see he wasn't completely happy.

Mario finds he is moving away from just the basic skills of tool work into matters of judgement. The new Sam turns out to be quite thoughtful and wants Mario to know why. Mario often feels uncomfortable as if he is being challenged to measure up and could fall or succeed in any one of these critical moments. On their latest job he keeps saying:

"This isn't TAFE, this is 13 Acorn Avenue, and we've got ten days to get this done. You've got to have that book knowledge about the weights and styles of timber for different loads and wet and dry areas, internal and external and all that, but you need to take all that general knowledge and put it through the sieve of practice."

Sam waves the circular sieve he uses to put the sand through when he is doing fine cement work.

"Most of that wood at the timber yard is to industry specs. If you chuck out more than half of it like young Mick wants to do, you're either in the wrong shop or you're in the wrong trade."

Mario reckons he is learning without knowing it.

For Sam's 60th birthday a few years later, Mario gets Mick, the exquisite worker of wood, to make a rosewood sieve angled on a stand with a little pile of 'sand' somehow piled up underneath it. He pays Mick for his time by taking over for him and putting in the form work for a cement floor he and his boss are doing.

Not funny then

Mario keeps up with his footy. He boots one of the winners from centre half-forward and goes to a triumphant boozy party one Sunday night. Whether it is his hangover, which is considerable, or the residue of his fight with Sarah at the party, Mario isn't sure. He would still say that Sam said 5960 for the rafters, but he did have a huge headache and it was bad and he couldn't be bothered to write the measurement down like he usually did. At any rate, while Sam is setting the ridge board, Mario has stacked the pine planks and cut them cleanly a few at a time with Sam's electric radial saw—all precisely and exactly the same. Then he passes them to Sam like he's done so many times before—a whole half roof-full all passed up and lying across the ceiling joists ready to be fixed to the ridge.

Sam can't believe it.

"These aren't 6950, they can't be."

"No, they're 5960 like you said."

"Don't give me that; it's 6950 like the drawing! Don't you bloody remember? Your mind's full of footy and booze and I don't know what else, but it's not here."

The 20 or so rafters are all too short, lying there in witness. Mario has cut them to 5960 and not 6950.

"Didn't you bloody see—they wouldn't cover a shithouse."

He hurls them off the building, sick with anger. This is his only job going and he is nearly out of credit at Banners and now 20 useless rafters to be stockpiled in case a job comes up where they can be used.

"They're $3.00 a metre."

He climbs down the frame and goes into the shed. "Gotta pay some bills," he says, gets into his car and drives off.

Mario looks at the off-cuts. He had thought casually that they had been rather long. "Use them as noggins," he had thought. His headache moves to his gut. Sam is pretty open with him so that he knows costs. He has done about $400.00.

Sam doesn't come back. Mario packs up the stuff and locks the shed. He is quiet at home. Sarah rings up but he isn't responsive.

Next day Sam arrives with new timber. Things are subdued. Mario apologises but says he really did think Sam had said 5960. Sam grunts. He puts Mario on the top plate and cuts the rafters himself and passes them up. He is civil but not much more and it is a few days before their easy exchange returnes. Mario gets lucky then. Sam gets an unexpected job—no quote, hourly-rate job for as long as it takes—for an extension—a study attached to a house in Malvern.

The extension is neat and calls for rafters—you guessed it, 5500. It is only then that Sam's grin really returns. They use the off-cut for noggins and Mario feels forgiven.

At Sam's son's 21st, Mario finds himself being called 'old short cut'—Sam, expansive in this good time and with a touch of claret, re-jigs the story—makes it funny.

"You should have seen him when I chucked the rafter down. He was priceless—like a stunned mullet. Ah Mario, it has to happen sometime. You've been lucky."

His painter uncle chimes in with the story about painting the wrong house in the street—easy mistake when lots were going up at once—not funny then, but "bloody funny now" choruses the rest!

Learning steel

Weeks into months and Mario has fitted in. A few weeks later when Sam's quote is not accepted by the tender board, Sam doesn't have work. Mario spends time cleaning and painting Sam's shed and sharpening

tools. "Downtime has its uses", he thinks. Then Sam's optimism starts to taper off until, almost out of the blue, a job comes through unexpectedly—bloke in a Volvo wants a granny flat for his mum who all of a sudden has sold her house and is moving in from Mount Gambier. Sam nearly follows him home to get started.

And then a job outside Port Augusta—Sam put the tender in late on Sunday night—had to fax it to be there before nine. It is a work-to-specifications job: three houses—a good job, but Mario can tell Sam isn't completely happy. Steel, bloody steel—no wood in the frame. Sam is a wood man; loves its feel and smell but the white ants will pack a cut lunch to get at the pine framing and that means 'treating' the site with nasties, so steel is the alternative: angle grinder, welder, self-tappers, pop rivets—fast and light. "Soulless", Sam has said. He is locked into the sounds and feel of wood: the thunk of a shiny three-inch nail biting into fresh timber and the great smell of freshly sawn pine. Mario reminds him of the boring plaster sheets and the boring nail guns—not much soul in that and as noisy as a bloody angle grinder.

"You wait," says Sam, "anyway, you'll be working with Stan. He knows steel. I'll come up to get you started and then off and on".

Mario is secretly pleased. His first job away from home, living in some motel in Port Augusta and his first go at steel. He is saved having to bring steel up with Sam but he has seen lots of steel-framed houses and is keen to get to know how steel framing works.

"It's funny," on his second jug of Gatorade at the squash centre (little Mick has just taken him out as usual. Mario doesn't mind—keeps him fit for serious sport like footy), "we've done all that steel stuff at TAFE and the safety bit—'gloves, goggles, ear muffs, hat'" they chant together—"but I don't think I really know it".

Mick agrees, "You'll have to put it through Sam's sieve".

Mick has heard about Sam's sieve. Mick has had experience in steel. His boss uses steel on more than half his jobs—it is so different. You can't pack up a stud if one is accidentally cut short but you can weld a bit on. It is precise and hard. "But," he says to Mario, "it's more like formulas—precision and speed—if your slab is dead square and dead level, they go up like lightning. No, I didn't learn that at TAFE, it was seeing it all together that I started to make connections".

Mario has been thinking a lot about how he and Mick are being trained. Sam basically treats Mario like his son; shows him everything. Mario shadows Sam until he and Sam become a fixture. He learns half the time just by doing a procedure with Sam nearby doing the same thing. Mick's boss isn't as friendly as Sam is to Mario but he gives Mick room and keeps an eye. Mick has learned to take the initiative to keep up with the work and to carve out learning space. Mario frowns.

"I mean," says Mick, "I have to plot my own training a bit. I can ask to be put on different kinds of work and most of the time the boss will back me. I have to plan ahead—he approves of that—says the most important tool a builder has is his diary. You know, he didn't finish that sentence last week, had to answer the phone. I thought of all the tools: hammer, chisel, screwdriver, axe, electric drill, jemmy, crowbar. I liked his answer—look! . . ."

Mick smacks his big, loose-leaf time manager diary.

"My dad shouted me that when I started. I think he agrees with my boss about the most important tool."

Mario reckons Mick looks about five years older. He is looking like a man. Mario thinks about bosses. Six months down the track and he and Sam are a smooth team. Sam shares more and more with Mario and Mario is hardly thought of as an apprentice. The set up is supportive. He often eats at Sam's place. Sam's son who is doing teaching, often seems less close to Sam than Mario.

Something new

At the end of the year, Mario asks HIA for a transfer. He has started to worry about the breadth of his knowledge—he knows everything Sam can teach him. Sam has said as much. Mario doesn't want to leave but he feels he might be missing out. He tries to think where building work is likely to go in the next ten years. He doesn't think he needs much more carpentry knowledge—he wants business savvy. Sam is okay. He will retire in another ten years with no bills to pay and his kids educated but he has knocked himself around with the stress of insecure work and catching up to meet deadlines, long hours, week-end work. His Italian family and friends keep him going.

Mario isn't sure about his prospects. He isn't an obsessive craftsman like Mick who has started doing up old furniture in his shed and is heading into the fine stuff. HIA has moved him to an old carpenter who does period restorations and is never out of work. Mick has kicked on. He has entered a competition for the best furniture-maker and is short-listed to go to Munich for the 'play-offs'.

Mario knows he is a first-fix man, at least for the moment. He kind of likes taking on a vacant block and setting up the trenches and form work. He has helped with a pole frame job at Mount Lofty which was very different and is getting a feel for variations on first fix. He and Mick might even end up a team but he isn't sure. Playmates don't always make work mates. Besides, Mick is a Pom! Or is he Irish? He isn't sure.

By now Mario has two years under his belt. His TAFE courses are keeping him, if somewhat reluctantly, in touch with industry rules and

bylaws. HIA agrees to move him for a spell to work with a company with about ten houses and a big residential complex on the go. There will be two first-year apprentices as well as Mario. Mario turns up at the site with the confidence and familiarity of two years' successful work and training. He reckons he could almost take over from Sam and feels he really doesn't need two more years. Brian at HIA grinned and said that he will see how he goes. The job is a low-cost retirement village half-built.

The new job is busy and noisy. The boss doesn't wear overalls. He drives a late model BMW, wears a light weight, grey suit and, believe it or not, dark sun glasses. He has a mobile phone, laptop and fax in his briefcase. The place is crawling with sub-contractors. The first years disappear to the flats to help with the framework for the next big pour. Mario's job is to hang doors. The boss treats him almost like a sub-contractor. For the next five weeks Mario hangs doors. The boss doesn't talk to him; didn't show him much except his style. The sub-contractors are flat out. Mario thought he knew all they were doing. It is a come down. These low-end jobs are so basic and so rational. At first he finds the challenge to do a perfect job and lower the time he takes interesting. After the third week he is getting bored. At the fourth week he makes time to see the boss.

"You're strong and capable and reliable."

The sun glasses are in his top pocket.

"You have refined your skill and you have set a benchmark for my company. The doors are good—we have met our deadline. This is a big show that does public stuff, units, flats, villages. It's always repetitive stuff. That's how we make our money—rationalise, plan."

He shows Mario his Gantt chart on the laptop.

"See we are here. It's March and we are on schedule."

He changes Mario to fascias and then to windows.

The next job is to be a minimum security prison—60 units. Mario's heart sinks. This is savvy. The builder has worked it well. He seems to work endlessly on his phone and laptop. They all look like skills from another profession. Was Graham ever a carpenter? The men at lunch laugh:

"He's a bloody accountant mate. I think he did some work for his father—he is a builder around Murray Bridge."

Mario ends up back with Sam and sees out his time with him and ends up Sam's partner. He never does graduate to sunglasses or a BMW, although his burgundy Toyota Land Cruiser with the chrome trim is pretty neat . . .

* * * *

The life of the apprentice involves a very interesting interplay between different worlds. Within these worlds, there are many roles to assume. To name just a few of the more obvious ones: an 'employee' of the industry association (in this case, the Housing Industry Association); an 'apprenticed worker' of the sub-contractor (in this case, the host employer) and a 'student' of the off-job provider (in this case, the TAFE institute). But there are also others that lie beneath the surface that have significant impact on not only the apprentice but also the other actors in the play. These influences and impacts are now unravelled and analysed as the report continues.

There are five main sections in the report:

1 Chapters 2–4 set the context for the study: the industry setting and climate, the theoretical background and the research design.

2 Chapters 5–6 analyse the two main learning environments constructed by the host employers on-job and the TAFE teachers off job.

3 Chapters 7–9 recount how these learning environments were experienced by the apprentices themselves, and the extent to which they were able to integrate learning from each.

4 Chapter 10 provides a quantitative framework from interstate counterparts that gives empirical detail in another dimension to the research and assists in weighing the qualitative evidence from the previous two sections.

5 Chapters 11–13 synthesise the key findings in terms of theoretical themes, implications for policy, practice and research, and summarise the overall conclusions.

2 The setting: Training reform and the building industry

In Australia's arid interior, towards the end of the dry season, pelicans occupying shrinking waterholes find the process of taking off challenging in the smaller water spaces. In order to gain speed, the giant birds move in a spiral around the perimeter edge of the waterhole where they once visited in search of food, thrashing with their wings until they become airborne. They continue to climb in widening spirals until they gain the height they want and fly directly to their destination. As they circle the waterhole, they traverse the different sub-environments which had yielded the variety of food they needed—parts covered with water grass, others discoloured with tannin from dropping leaves, other parts clear with fish visible and sand below. The pelican traverses these same sectors of the waterhole, this time rapidly accelerating for take-off, slowing where the weeds are thick, keeping low from overhanging branches and putting full power in clear water to make the break to become airborne.

It is this circular, purposive visiting of different environments according to the pelican's agenda to explore, to eat and eventually to fly, that is analogous to the contemporary apprentice's spiralling learning journey between the TAFE institute and the various workplaces assigned to each. As beginning apprentices, they are like pelican chicks swimming around their home waterhole, feeding on the food available from the various parts of the water hole, trying each in turn and repeating the process in sequence as taste and supply dictate. With increasing strength and wing-power, the young adults begin to see the habitat which once engulfed them as a runway for takeoff for new expansions and adventures.

Similarly, apprentices are scheduled to visit in planned sequence a number of environments designated to assist their learning, in order to gain all that is needed to become airborne as persons qualified in the trade. How the apprentices evaluate the offerings from these different environments will depend on what they offer and what they want from them.

Apprentices in the building trade enter a field engulfed in changes. Large building firms in the past had a group of trainees rather like novices in a monastery, who had a recognisable transitional identity. The apprentices were to be the new generation in the firm to be cherished, challenged and

progressively introduced to the tricks of the trade. Senior tradespeople in charge of them ensured that they were exposed to the whole range of activities of the firm. 'The trade' tended to mean the actual processes of reading plans, setting out a job and progressively carrying it out while keeping abreast of innovations in technology and design. Questions of 'the business', the broader processes of tendering for jobs, managing sub-contractors and keeping up to date on legal requirements of occupational health and safety tended to come later, if at all.

Under current circumstances, 'the trade' almost always involves 'the business'. Most apprentices are quickly aware that they are not being trained for permanent or semi-permanent work in a large firm. In such a firm they might once have been able to specialise in carpentry and joinery for example, depending upon the managers to keep the work coming and their union to protect their pay and conditions. Increasingly, apprentices are engaged in training which treats them as collaborators in a small business where trade skills are juxtaposed with business skills—tendering, planning and coming to grips with changing regulations in the industry. To a much greater extent than was once the case, apprentices are required to be autonomous and independent much more and much sooner.

This study explores the experiences and perceptions of apprentices, workplace host employers and off-the-job teachers engaged in an apprenticeship program which is currently offered under an integrated training arrangement. The research was conducted with funding from the Australian National Training Authority Research Advisory Council (ANTARAC) by a team from the Centre for Research in Education, Equity and Work (CREEW) at the University of South Australia. It was undertaken in collaboration with the Housing Industry Association (SA Division) (HIA SA) and the South Australian Department of Employment, Training and Further Education (SA DETAFE).

The issue for research

This research emerged from a long-time interest of the researchers in adult learning within various environments and in the training reform agenda of the 1990s. Where these two dimensions intersected was at the point of what could be labelled, in a shorthand way, integrated training. One of the key reform initiatives has been the shift in emphasis away from institutionalised learning to workplace learning; that is, to create new models of integrated training. That shift is highly significant, and brings with it considerable educational, socio-cultural and political baggage which fundamentally challenges the current *modus operandi*.

What is the nature of on-job and off-job learning environments? What and how do they contribute to learners' learning? How might they best

be integrated for the benefit of the learner? Such queries provided the impetus for reflecting on these learning environments in the light of increasing recognition of the potential significance of the workplace and the need for more research to inform policy review and development. The ANTARAC focus on workplace learning provided the final spur for deciding to undertake research in this area.

There have been increasing calls through the 1990s by governments, working parties and individual experts for more integrated and coherent models of training. The assumption appears to be that moving away from traditional and time-served approaches will lead to more relevant, authentic, efficient, effective, transferable and team-oriented training. These advantages are perceived to be due to such a model being able to integrate both on and off-job learning into one meaningful, holistic experience for apprentices/trainees.

Accordingly, a number of writers in the field advocate a mix of on and off-the-job learning for apprentices/trainees. This mix is to be brought about by partnerships between industrial and educational providers. There are sometimes quite widely differing perspectives on the extent to which, and the ways in which, these two environments are able to contribute to learning. For example, many have traditionally assumed that off job is the most appropriate learning environment for a host of reasons. Recently, this assumption has been called into question, and others advocate on job as the most appropriate learning environment, again for a multitude of reasons. Still others champion various models of integrated training. But as Gonczi (Western Australian Department of Training 1996, p.34) has recently said, 'How this learning [in the workplace] can be integrated with off-the-job learning is an open question'.

The researchers perceived a need in 1995 to research these different learning environments in order to investigate what each is actually able to offer to learners, and how they might best complement each other. They also looked at the enabling factors and barriers to establishing more integrated models of training. Such research was believed to be urgently needed for the provision of a research base to inform both policy and practice in vocational education and training (VET). As Bryce (1995, p.19) has concluded: 'Much of this new [training reform] environment is as confusing to educators as it is opaque to much of industry', and yet 'the development and implementation of policy has taken place from a minimalist research base'.

Without research in this area, therefore, VET policy and publications continue to run the risk, as Hall (NCVER 1994, p.5) has warned, of 'being in the form of sermons, with no experimental support for sweeping statements . . . The trouble is that people start to believe such statements, never questioning their validity'. The VET sector's policy dependence on anecdote, hearsay and 'gut feeling' has already been highlighted by

Butterworth (1994, p.26). His review of previous work led him to conclude that VET sector policy development has been determined in a research vacuum, largely by ideology and 'driven by the beliefs and values that society holds, a substantial portion of which will be related to the political agenda of the time'.

The notion of integrated training

Much of the literature on integrated training has focussed on systemics—either at the macro or meso level. A great many documents have flooded VET bookshelves on the big picture, structural arrangements perceived to be essential for the effective implementation of the training reform initiatives of the 1990s. All the early Vocational Education, Employment and Training Advisory Committee (VEETAC) inspired framework literature is an example. At the meso level, there has also been a flood of literature, or more accurately conference and workshop presentations, describing examples of structural arrangements for the integration of workplaces and providers. This often falls under the rubric of best practice case studies.

McDonald et al. (1993, p.40) in their VEETAC commissioned report, *No small change*, concluded that there was little research and development on workplace learning. In their table of research needs in VET over the next five years, they cited 'collaborative and co-operative models of training for industry and providers' (p.42); 'learning settings, processes and outcomes' (p.43); and 'the nature of workplace learning' (p.43). This theme was still being trumpeted three years later by the Committee for Economic Development of Australia (CEDA 1995, p.20) when it stated that 'there has been little research into how people most effectively acquire workplace skills and competencies'.

One of the main reasons for this dearth of research has been a general lack of interest in the area in the face of other, seemingly more attractive and valued fields of research. According to Sweet (1993b, p.83), there is 'very little scholarly interest in Australia in the . . . area of education and the workforce'. Another reason is the size of the gap between these 'two worlds' where each is investigated as though they were completely separate domains and by researchers from different backgrounds, interests and disciplines. Casey warned in 1993 that it was important to recognise 'the current depth of the gap between the two parties' (pp.31–32). It is significant that to a person who has wide experience in both environments and in attempts to integrate them, they are not merely separated by a gap but by one that has considerable depth. Worsnop (1994) suggested a year later that off-job training is seen as too separate from workplace learning, and stronger relationships must be established between training providers and industry groups.

By mid-1996, this gap was still being highlighted by a conference of the National Centre for Vocational Education Research, intriguingly entitled 'Integrating assessment: Removing the on-the-job/off-the-job gap'. This conference provided a national forum for reflecting on what a presenter called:

> *one of the basic tenets upon which the training agenda has been constructed: namely, an assumption that learning, training and assessment is more meaningful, relevant and authentic if at least part of it occurs 'on the job', or at least in the workplace.* (Bloch 1996, p.1)

Such an assumption has certainly been prevalent in the recent literature. The VEETAC CBT Working Party (1993), in their report of discussion at a national workshop, stated:

> *Acknowledgement was made that institutional training providers are in general producing clients who are 'work ready' as opposed to 'competent in the workplace'. This latter takes time and experience. Widely implemented, integrated on and off-the-job coherent training programs would assist the development of a total training approach for Australia to move into the next century. . .*

The workshop 'acknowledged the importance of the concept of integration of on and off-the-job training and all that this implies' (p.19), and concluded that 'there was an overwhelming consensus for an integrated approach to on and off-the-job training' (p.21). This viewpoint was also made a few years later by Hawke (1995, p.iii) in his review of work-based literature, concluding that the 'effective integration of formal learning off the job with practice on the job provides the best of both worlds'.

The novelty and significance of this way of thinking about the notion of integration has also been referred to by Worsnop:

> *If the outcome of training is to help participants gain competency, then the integration of off and on-the-job learning achieves a level of importance and demands a level of commitment that is quite new . . . Integration . . . will demand the development of close relationships between trainers and people in the workplace.*
>
> (Worsnop 1993, pp.31–32)

Certainly the relative merits of on-job and off-job learning have only recently started to receive the serious research attention their place in the national training reform agenda demands (Harris et al. 1995). Billett (1992, 1994) examined workplace learning arrangements in a mining and secondary processing plant to draw conclusions about outcomes from workplace learning. In another useful document called *Learning is working when working is learning* (1993), Billett provides guidelines for learning in the workplace, based on guided participation in authentic workplace activities. Evans (1993) described different learning processes that take

place in institutional and workplace conditions, arguing that it is important to discover the best features of formal and informal learning and, if possible, use them in both contexts. The comprehensive review of the literature by Hawke (1995) has provided an excellent map on work-based learning and in particular integrated training, serving as a useful summary of major developments in the field.

Cognitive psychologists such as Gott (1989) have tended to work within the paradigm of three types of knowledge—procedural (the techniques, skills, abilities); propositional or declarative (the facts, assertions, concepts); and strategic (how to decide what to do when). They seem to agree that, while declarative knowledge can be adequately learned off the job, the best environment for the others to be learned is the actual workplace.

Billett (1993, 1996a) has modified that framework in terms of attempting to graft onto the first two types of knowledge—namely, knowledge 'how' and knowledge 'that'—a socio-cultural dimension on learning, so that his third category becomes dispositional knowledge (the values, attitudes, social values). While the workplace has strengths for learning, it is not without its limitations, for Billett's (1996a, p.50) view is that 'workplaces, like any other settings, are inherently value-laden'. An organisation's values influence the nature, type and access to learning activities. Specifically, he sees the following as six possible limitations to the effectiveness of workplace learning: the construction of inappropriate knowledge; limits on access to authentic activities; reluctance of experts; access to expertise; opaqueness of some knowledge; and access to instructional media.

This caution is also heralded by Casey (1993, p.29) who claims that 'for the student, the on-job component is at best hit and miss and at worst a complete farce'. Using as an example a trainee cook apprenticed to a pizza restaurant, he believes at best they would have the opportunity to practise and develop around 25 per cent of the skills and knowledge required according to the agreed national standards. He states that:

> *Industry is not and never will be an educational establishment, as education is not its core business. However, industry provides a critical part of the individual's learning. Industry is the 'finishing school' in the lifelong education process, as it provides the resources, support and practical experience that actually enables a person to achieve a sense of worth (rather than just a piece of paper).* (Casey 1993, p.33)

He concludes that both on-job and off-job partners need to 'clarify their respective roles in the provision of a supportive learning environment' (pp.31).

Hayton (1993), too, has pinpointed a number of difficulties in the training process of both environments in the building industry. These include lack of integration between workplace and college learning, lack of awareness

of current building methods by TAFE teachers, and failure of workplaces to provide opportunities for incidental learning to be formalised or reinforced. 'The overall picture which emerges is one of opportunities lost on both sides', is Hawke's (1995, p.23) verdict.

A recent discussion paper by Fooks et al. has listed the following as the contributions of institutional education, a claim based on personal opinion and therefore requiring testing through research:

> *There is real purpose in institutionally provided education that cannot be replicated with the same outcomes elsewhere . . . institutional education can provide a coherence in educational strategy; the building of learning support mechanisms that are not possible, or even desirable, in non-institutional settings; the encouragement of interdisciplinary engagement at staff and student levels; the collection and development of learning resources; and the opportunity for the learner to be a student rather than, or as well as, a trainee. Institutional education also generates a demand for staff with teaching qualifications and in this way maintains the supply of such qualified and experienced staff to the VET system as a whole.*
>
> (Fooks et al. 1997, p.11)

The authors acknowledge that there can be a downside if institutional rigidities develop or if institutional boundaries are allowed to become barriers to contact with the world of work.

An ANTARAC-funded study by Box Hill Institute of TAFE Consortium (1996, p.4) reports that employees overwhelmingly prefer learning on the job when compared with off the job. However, on-the-job learning was not without its drawbacks. Two detractions in particular were the feeling of being pressured by the demands of production which became an inhibiting factor to their learning, and the unpredictable quality (not technical expertise but ability to impart their knowledge and skills) of workplace trainers used in on-the-job training. Off-job trainers were more likely to be qualified, have broad experience and be responsive to trainee evaluations.

The study also found a significant number of employees indicating a combination of on-job practice and off-job reflection and treatment of theory as their preferred way of acquiring vocational skill. There was a strong endorsement of workplace classrooms on the basis of (a) greater direct relevance to the job (often through customisation) and (b) better transferability of learned skills back to the job-site compared with more remote institution classrooms.

A particular area of industry neglected in research on training has been small business. Apart from workplace learning, another of the ANTARAC's research priorities in the mid-1990s has been the small business environment. One of the main conclusions of the report, *Successful reform* (Allen Consulting Group 1994), was the apparent lack of support by business—and especially small business—for the training

reform agenda, and the concern that many enterprises have failed to lift the strategic role of training within their own organisations to best practice. Bryce has also reported that:

> *[o]ther surveys, such as the June 1994 NSW TAFE survey on the training needs of small business conducted by external consultants (unpublished), confirm the view that small business in particular, which employs half the workforce, does not place a high priority on education and training.* (Bryce 1995, p.23)

There are many other writers on various aspects of integrated training. Further relevant work, for example, has been reported in Carter & Gribble (1991), The Victorian Education Foundation (1992), Sefton et al. (1994), Kell (1995), Curtain (1995), Harris (1996) and ANTA (1994, 1996). The most recent study on integrated training was undertaken by the National Centre for Vocational Education Research (Mathers 1997). It was prompted, in part, by recent criticisms of some apprenticeships and traineeships for their failure to integrate training provided off job with what happens in the workplace. The study researched eight case studies in South Australia and New South Wales, describing their integration arrangements and analysing factors influencing effective integration. The research highlighted two key requirements for achieving integration. The first was the need for one organisation to take responsibility or take the lead in co-ordinating training. The second was the provision of a training framework supported by training and assessment resources which defines standards and serves as a guide for training delivery and assessment.

A great deal of the published material, however, merely adds to the rhetoric about the value of integrating on and off-job learning. There is little in the literature that critically analyses the relative merits of on-job and off-job learning, and what may be most effectively learned in which environment. Very little of the published material addresses the challenges posed by the current shift to a greater emphasis on workplace learning. It is important that researchers move beyond the rhetoric and analyse in more depth the full range of issues associated with this shift of direction. In particular, attention needs to be paid to the relative contributions of each environment, how their 'best features' (Evans 1993) can be capitalised on, and enablers and barriers to establishing integrated models of training.

In summary, what is continually reinforced in the literature on integrated training is the newness of the required level of integration, the importance of both workplace and provider environments for learning, and the need for more educational research in the area. While the literature concentrates on the macro and meso levels, what has clearly been neglected is research work at the micro level, at the level of individual humans striving to make sense of what integrated training really is all about within their particular work context. It is the authors'

contention that more research needs to be undertaken on the experiences of sponsors, trainers and apprentices and the various meanings constructed by them. Structural arrangements are a useful beginning, but they are only that—a beginning. Where training reform has faltered has been more at the human interface. How the actors and stakeholders perceive these changes and work or don't work with them, is the vital ingredient about which not enough is known and which has been for too long ignored by reform architects and advocates.

It was on the basis of this high priority for research into these different working and learning environments, and the continuing political significance attached to this field, that this research project was undertaken. It is the authors' contribution to the increasing effort to 'unpackage the "black box" of workplace training' (Scribner & Sachs 1990).

The context: The building and construction industry

The building and construction industry in Australia has been going through a time of considerable structural readjustment and other change as a result of national micro-economic reform. As in other industries, sections of this industry have responded innovatively, while other sections have continued along traditional paths and have been largely unaffected. To a great extent, such responses are the result of human mindsets. However, Greig (1992, p.77) has also maintained that particularly in the housing sector, unlike many industries, the skill requirements have not been much affected by technological change. Changes have been confined to a limited degree of pre-fabrication of products and the mechanisation of trade tools such as power tools and nail-guns. Thus craft skills have remained of over-riding importance.

The industry has been characterised in a number of ways and a brief summary of these features provides an illuminative backdrop in setting the context for this study. Here, six key features are singled out as having an important contextual bearing on this study.

1 A 'boom and bust' industry

It has been labelled a 'boom and bust' industry very closely linked with economic cycles (Hayton et al. 1993a). It oscillates between skill oversupply in periods of recession and skill shortage in periods of boom. Thus the workforce is mobile. This pronounced cyclical characteristic is one of the most significant factors militating against investment in skill formation in the industry.

2 A fragmented and segmented industry

It is also 'a large, diverse and complex' (Wallace et al. 1989, p.13) industry, one that is fragmented (NSW Government Green Paper 1996; Buchanan & Sullivan 1996) and segmented (Towers Perrin 1993, p.24). In May 1994, the industry had 553 300 people employed, representing 8.3 per cent of Australia's workforce (Smith et al. 1995, p.18). The diversity may be illustrated in terms of sectors, nature of work and employees.

Firstly, there are great differences between the activities and outputs in the housing, commercial building and engineering construction sectors of the industry, and therefore needs are different among quite disparate interest groups. This means that it is difficult to identify a group of authoritative voices who can put viewpoints that will be accepted by those they are believed to represent (Wallace et al. 1989, p.16), and that sections of the industry often have more in common with other industries than they have within the industry (Towers Perrin 1993, p.25). Secondly, the great number of organisations within the industry are highly technically specialised; most being craft or trade based, which limits their ability to provide opportunities for multi-skilling or enterprise-based career paths. Thirdly, the industry has a high proportion of workers born overseas, with less than a quarter having English as their first language; and a low proportion of women employees, who comprise about 11 per cent of the building and construction workforce but in trade occupations only about 1.5 per cent (Smith et al. 1995, pp.23–24). The fragmented and segmented nature of the industry is another major challenge confronting the reform of skill formation.

3 A small business industry

Employees are spread between businesses of different sizes, with most working for either very small or very large organisations. It is 'predominantly a small business industry', with most of the workforce self-employed (Smith et al. 1995, pp.10, 36). Of the 96 605 establishments operating in June 1989, 95 per cent employed ten or less (with 64% employing two or less), and just over a quarter of employees located in very small establishments of two or less people (Smith et al. 1995, p.19). In fact, a high proportion work as, or for, a sub-contractor. Sub-contracting has implications for training, in that sub-contractors tend to be less likely to undertake training because of their need to trim costs, and their core workforces are smaller.

4 An industry without a common vision of workplace reform and skill formation

A feature of the industry is the lack of a common vision of workplace reform and skill formation by groups within the industry, as well as by government bodies. Smith et al. (1995, p.18) suggest two factors for this. One is the lack of a single body representing all or most of the enterprises in the industry. The second is the absence of direct overseas competition to force the pace of change.

5 An industry with very low expenditure on in-house training and heavy reliance on apprenticeship

There is a long tradition of trade apprenticeship training involving external training. The industry has a heavy reliance on apprenticeship as a means of training—the emphasis on trade qualifications is far higher than in other industries in Australia (Hayton et al. 1993a, p.35). Next to community services, the industry has the highest percentage of workers with post-school qualifications, though these are predominantly trade qualifications (Hayton et al. 1993a, pp.23–24). Fifty-seven per cent of all expenditure on training in the industry is on apprentices—the highest of any industry—but in stark contrast a mere 0.8 per cent of wages is spent on in-house training (Smith et al. 1995, p.17). This dominance of trade training Smith et al. (1995, p.25) call 'remarkable'.

6 A 'tarnished image' industry

A significant characteristic of the industry is the public perception that it is besieged with many problems. Hayton et al. (1993a, p.2) and Smith et al. (1995, p.17) both call it a 'tarnished image' in the Australian community, and cite the following as the perceived problems covering all sectors of the industry:

- fragmented with a large number of employer and employee organisations
- inefficient with a poor level of productivity
- having workers who are basically overpaid for their labour and levels of skill male dominated
- recruiting much of its workforce from those who have a low level of academic achievement and relatively low levels of literacy, English language and numeracy riddled with employer and union confrontation

- corrupt and full of 'rorts'
- traditionally bound by pursuing outdated work practices and job demarcations and with restrictive practices which limit the abilities of many workers to move between States and to work in the most efficient and effective manner
- being poorly managed. Projects are late, over budget and have a poor industrial relations record

They also acknowledge, however, that in recent years there have been many important moves forward in the industry, and their analysis of statistics actually reveals a more favourable reality than the image. They point out that the industry is a significant contributor to Australia's gross domestic product and that it is a lead industry in that it affects the competitiveness of most other industries in the economy (1993a, pp.4-5).

All these characteristics mark this industry as 'a key industry for the study of training practices' (Smith et al. 1995, p.10). There is no doubt that the need for continuing training reform has been strongly recognised, and most importantly, by those within the industry itself. Late in 1991, Stephen Snow, Director of Training with the Master Builders' Association of Victoria, wrote:

> *The Australian building and construction industry faces significant challenges . . . it is essential that these changes occur . . . There is a real need to address the problems of apprenticeship training as part of the larger problem of entry-level training.* (Snow 1991, pp.1,19)

Peter Wilson, Executive Director of Construction Training Australia, has been quoted as saying:

> *One of our main tasks is to create better ways to train and develop the skills of Australian building and construction workers, and our new name [previously the National Building and Construction Industry Training Council] helps to communicate that.* (in Zonneveldt 1995, p.6)

The Construction Industry Forum in New South Wales has also identified skill formation as 'a key problem facing the construction industry' (Buchanan & Sullivan 1996, p.1). All participants believed that the industry is facing an impending skill shortage of quality skilled labour, that there is a shortage of leadership and co-ordination of skill formation in the industry, and that current training arrangements remain outdated and inefficient.

The number of training initiatives in the industry across Australia are themselves a reflection of the increasing recognition of the need for change. Buchanan and Sullivan (1996), for instance, have recently recorded 30 different examples of skill formation innovation in the construction industry, involving change at all levels of the education and training system—school, TAFE, higher education as well as approaches to

on-the-job training. Together these practical initiatives represent a major achievement given the size, diversity, fragmentation and perceived problems cited above.

The lessons about training reform in the industry from the study by Buchanan and Sullivan (1996, pp.12–15) include the following:

- The number of workers and enterprises involved in these new approaches is limited. They suspect no more than a few thousand employees are involved in these innovative projects and fewer than a dozen enterprises are driving the changes.
- The major gaps in innovation appear to be at the enterprise level. Most appear to regard training as a cost that they should minimise.
- Links between different parts of the industry's skill formation system are *ad hoc* at best. Most enterprises, large and small, appear to have few training arrangements beyond the apprenticeship system and co-ordination between enterprises over matters other than apprenticeships is almost non-existent.
- Most innovation has been promoted by public funds. There are only a few examples of innovation in training that were devised and implemented purely within the private sector. Where enterprises face a training problem, the most common solution is to poach employees by bidding up wages.
- They suggest that the key to involving employers more actively is to ensure that training is integral to improving competitive performance. Training minimises overhead costs associated with supervision/on-the-job training, trainees are immediately productive on the job, and that on-the-job training complements skills actually used on the job.
- It is important that training reform involves the enhancement of skills currently held by employees, and not just improving training at entry level, in order to increase the flexibility of the workforce.

As the authors claim:

> *If training practices within an industry are actually to improve, the critical issue is to reform business structures and working practices to make skills formation integral to daily working life. This is not easily achieved.* (Buchanan & Sullivan 1996, p.2)

The construction industry's investment in skill formation through in-house training has historically been and still is very low (Smith et al. 1995, pp.10,17). Most of the in-house training effort is focussed on instruction rather than structured work-based learning, and apart from trade apprenticeships there is very little structured work-based learning. What work-based learning there is in apprenticeships is usually not structured and generally not well managed.

There are acknowledged to be several problems with the trade apprenticeship system. Problems include the cyclical nature of apprenticeship commencements (corresponding to building activity cycles), the narrow focus of traditional trade curricula, and the quality of on-the-job training, which is variable as it is often not managed well and unstructured (Smith et al. 1995, p.25).

Three factors are largely responsible for the quality of apprenticeship training: the quality and relevance of TAFE instruction, the quality of on-the-job training and the extent of integration of TAFE and practical work-based learning. The latter two factors concern in-house practical learning and are primarily the responsibility of the employer. However, it is these aspects that are being criticised; for example, Construction Skills Training (Vic) (cited in Hayton 1993, p.8) said a few years ago that 'the structured nature of [the apprenticeship work-based] learning process leaves much to be desired'.

On the other hand, the first aspect relating to TAFE is not immune from criticism either. While some exemplary practices of TAFE are in evidence, there is considerable wariness on the part of the construction industry to use TAFE services (Hayton et al. 1993a, pp.13,55). The authors quote a New South Wales report of 1992 that concluded that many in the construction industry (66% of respondents, the highest of any industry) see barriers to close links with TAFE. Most of the problems relate to TAFE's flexibility and ability to be involved in on-site training and assessment, where it is 'not regarded as suitable or helpful' (Hayton et al. 1993b, p.48; Smith et al. 1995, p.36).

Moreover, the third factor concerned with integration has not had much attention paid to it, and appears very problematic in the light of the evidence just cited. Yet it is very noticeable that most of the innovative examples studied by Buchanan and Sullivan (1996) across Australia had, as an important ingredient, the close collaboration of TAFE and the worksite. In addition, the authors single out educational institutions (whether schools or TAFE) as one of the three prime sources of innovation (pp.13, 15).

It is therefore hardly surprising that the present system of trade apprenticeship training in the construction industry has a number of difficulties. The industry has relied on the apprenticeship system for a very long time and it has been, more than in any other industry, the main source of skilled and qualified workers. However, the problems, including the cyclical fluctuation of apprentice intakes and the narrow specialisation of trade training, need addressing if workplace training is to be reformed. Hayton et al. claim that:

> *[t]he potential of structured learning at the workplace is largely untapped in the construction industry. There appear to be two reasons for this. Firstly, statistics . . . [indicate] that there is relatively little structured*

> *learning at the workplace in the construction industry in Australia . . . A second problem is the lack of formal recognition of such learning.*
> (Hayton et al. 1993a, p.38)

Change to workplace training, however, will not be easy. From their study of ten enterprises in the building and construction industry, Smith et al. (1995, pp.35–36) list the following as impediments to training in the industry:

- the sub-contracting culture
- pressures of small businesses
- lack of economies of scale for small businesses
- lack of appreciation of the benefits of training
- inflexibility of external training
- competition among the larger enterprises

To this list, Snow (1991, pp.19–20) adds the following as problems with the apprenticeship system:

- inequity of access
- relationship between apprentice intakes and industry activity
- the continuing segregation of education and training
- lack of entry standards
- lack of articulation

He claimed that while industry had clearly identified the problems and was taking steps to reform the system, no work had been done in examining the relevance of the system or in developing complementary alternatives. Greig (1992) cites two main problems with building apprenticeships. The first is that smaller firms have difficulty employing apprentices because of the high costs of non-productive time compared with total turnover of the business in a highly volatile market. The second problem is that shortage of skilled labour in the industry encourages apprentices to set up on their own as soon as they are qualified, meaning that their sponsor does not receive a return on their investment.

One of the main drawbacks in attending systematically to the industry's problems is the lack of a strong research base. There have been several reports relating to or including skill formation in the industry over the past eight years, and they all contribute to the larger picture, but the majority have been primarily developmental in character, programmatically oriented or anecdotally portrayed. Some examples include Snow (1991), Morrison (1992), Greig (1992) and Towers Perrin (1993), as well as a host of conference papers. The three research-oriented

studies that are most informative for this study, apart from the study on industry innovations by Buchanan and Sullivan (1996) already mentioned, are those by Wallace et al. (1989), Hayton et al. (1993a,b) and Smith (1996a,b).

The first study (Wallace et al. 1989) documented existing training provisions and suggested five possible models of training for the building industry. It was based on literature reviews, interviews at five case study sites and analysis of eight submissions. Though the report's focus was on structural concerns and is rather dated given the training reform that has taken place in Australia, some comments on the nature of training are interesting from a comparative viewpoint.

Some of the apprentices interviewed thought that too much was being expected of them (for instance, doing work of a tradesperson in their second year of training), though one had considered he had been treated as a 'broom-hand' (p.55) during his apprenticeship. Many respondents believed that on-site training was the best method, with appropriate off-site support as required. The quality of on-site training was 'hard to assess, can be very variable and in some cases is almost non-existent' (p.55). An interviewee commented that the industry generally regards TAFE as the major provider and, consequently, on-site training was largely neglected. Submissions called for a survey of the industry to determine the extent, duration and direction of on-the-job training, given that it was 'very largely an unknown quantity' (p.58). Training was often seen as too costly and complicated for the small builder/sub-contractor, and therefore thought needed to be given to means of supporting them and encouraging them to accept a role in training the workforce. Finally, the need for improved communication at all levels was underlined, including between worksites and training authorities.

The second study (Hayton et al. 1993a) was commissioned by the Construction Industry Development Agency as part of its brief to promote reform of the construction industry. Its focus was on skill formation practices in large construction projects, and specifically excluded house building and residential building construction. The method involved collection of statistics, reviewing recent reports, interviewing industry leaders and conducting six case studies of major construction projects in three eastern States. The study is an excellent work, particularly in its comprehensive review of the literature, analysis of relevant statistics and clear summary of major issues facing the industry at that time. One of its key issues is a useful springboard for this study, namely, that 'there is a perceived need for greater co-operation between TAFE and the industry on trade training, and improvements in associated on-the-job learning'. The overall focus, however, on large projects and links between workplace reform and skill formation lead to it being a very different report from this one.

The third study (Smith 1996a) was a qualitative analysis of attitudes to apprenticeship in the construction industry. Information was gathered late in 1995 using semi-structured interviews with TAFE teachers, apprentices (first and second year) and their employers, and was compared with the picture of this form of training depicted in the literature. The sample was restricted to 19 interviewees in Wagga Wagga in New South Wales. The report focusses on two main areas—hiring decisions and on-the-job learning and, in passing, makes important observations about the meaning and resilience of apprenticeships. In terms of this study, its interest lies in its comparative findings on apprentice learning in one provincial city—these findings are summarised later.

Apart from these studies, little research on training in the building and construction industry has been undertaken. Hayton et al. (1993b, p.48) call for more research on several issues important to the industry, including the range of skill formation practices in the industry, ways of implementing competency-based training and approaches to work-based learning. Repeated calls like this for more research into workplace learning and its relationships with off-the-job learning provided the stimulus for this study.

Training reform and apprenticeships

In Australia, apprenticeships are characterised by an employment contract between employer and apprentice. Obligations apply to both parties and employment contracts are lodged with the relevant State or Territory body. They normally last for four years. Apprentices attend off-the-job training, usually during the first three years, and most often at a TAFE institute. On-the-job training is also provided.

There has been very little study of the operation of apprenticeship at the micro level, particularly covering on-the-job as well as off-the-job experiences (Smith 1996a, pp.2,13,17). Venables' qualitative research on the attitudes and behaviours of apprentices, employers and technical teachers in Birmingham, England in the late 1960s and the early 1970s is the major contribution. The focus of her work, however, was engineering rather than building students. Among her main findings (extracted from Smith 1996a, pp.13–14) were:

- Apprentices' attitudes towards their study were affected greatly by their employers' view of the importance of the off-job study.
- Off-job study was easier for apprentices who worked in large companies; apprentices who were lone apprentices in their company needed to be highly motivated to take their off-job study seriously.

- The nature of on-job training was influenced by work organisation; in 'site-contracting' companies (where work was undertaken on customers' premises), the emphasis was likely to be on practical training and not on standardised company procedures, and the worker was likely to identify with the occupational group rather than with the company.
- In a follow-up study, while ex-apprentices had not always found their off-job studies satisfactory, they considered the time at college was worthwhile on a personal level because it afforded them entry to the status of craft worker.
- Apprentices working in small companies and those working for contractors tended to rate their on-job training more highly.

This last point was also a major finding of a more recent Australian study by Wilson and Engelhard (1994). They found apprentices tended to value their on-the-job training more highly mainly because of two reasons: the learning is perceived as being more authentic, and they have the opportunity to ask questions of a more experienced worker.

Smith's study (1996a) appears to be the qualitative research in Australia closest to the focus of this study. A summary of her findings on building apprentices relevant to this study follows:

- The key factors affecting the attitudes and behaviour of apprentices and employers are the economic cost of hiring apprentices, the relationship between the apprentice and adult worker, and the importance of tradition.
- The nature of the enterprise in terms of work organisation, strategy and general commitment to training was of paramount importance to the extent and quality of on-the-job training.
- There is more to an apprenticeship than the learning of skills. Most employers and apprentices appear to concur that skills used at work are learned on the job rather than at TAFE, yet there is no real opposition to apprentices attending TAFE.
- There appear to be two main sources for the need for external as well as internal training. These are the fragmented nature of the industry creating a need for on-job training to be backed up and validated and also extended by off-job training; and the notion of 'becoming', in this case a carpenter or joiner, appearing to require external reference points to develop 'craft consciousness'.

Evidence suggests that characteristics of apprentices have been undergoing changes in recent years. For example, the age of people starting apprenticeships and traineeships has been increasing. In 1985–86, approximately 74 per cent of such people were 17 years or younger; by 1995–96, the equivalent figure was approximately 34 per

cent. The Australian National Training Authority (ANTA 1997, p.26) reports that anecdotal evidence from employers indicates that this trend has resulted in changes in the salary and career expectations of apprentices in particular.

Reports from employers have also indicated that there has been a decline not only in the number but also the quality of applicants for apprenticeships in many trade areas (ANTA 1997, pp.26–27). Some employers have stated that they have rejected apprenticeship applicants because of their inadequate basic skills in areas such as literacy and numeracy. The reasons for this quality decline are presumed to be related to a lack of vocational options in schools which lead to apprenticeships and the priority accorded to university studies by teachers and career guidance counsellors. Negative perceptions about the future of jobs in manufacturing and the traditional trades is also seen as a factor in this decline.

Changes have not only been qualitative but also quantitative—traditional apprenticeships in Australia have been declining since 1990. While past downturns have tended to be cyclical, what is significant about the decline in the 1990s is that it is sustained and occurring at a time of relatively strong overall employment growth. The imperative for businesses to be increasingly competitive has forced them to move towards a position of maximum flexibility where they can respond quickly to changing demands. There is a concomitant decrease in the proportion of permanent workers and an increase in the outsourcing of functions that previously provided structured training opportunities. The focus is heavily on increased efficiency and productivity, with concentration on high quality products to maintain market share. In this environment, employers—especially small business—are increasingly perceiving training as an expense rather than an investment, and are reluctant to commit precious resources to long-term training such as four-year apprenticeships.

A key element in federal government training policy, however, is the reform of apprenticeships and traineeships while maintaining and strengthening the specific term 'apprenticeship'. The federal Minister for Schools, Vocational Education and Training recognises that employers, especially in small and medium-sized enterprises, have been discouraged by 'the seemingly impenetrable maze of industrial relations regulations, bureaucratic structures and jargon that characterises training' (Kemp 1996, p.8). The intention is to make 'training, especially at the entry-level, a more attractive business proposition for a much wider range of enterprises' (Industry Reference Group 1996, p.1).

A significant player in this scene is indeed small business. Small businesses account for 84 per cent of all businesses in Australia and are increasing in importance as a source of employment opportunities; as a share of total employment (including the public sector), small business

has risen from 39 per cent in 1985–1986 to 45 per cent in 1993–1994 (ANTA 1997, p.16). However, small businesses are increasingly specialising and sub-contracting, and thus opportunities for them to commit to four-year contracts of training are constrained. One important study across a number of Australian industries (Hayton et al. 1996; Hayton 1997) found two key factors determined training decision-making within enterprises—the size of the enterprise and the industry sector within which it functions. That study showed that small firms rely on a narrower range of types of training than large firms, are less likely to rely on competency standards, depend less on formally accredited training and are unlikely to be registered as a training provider, with the result that 'there is likely to be a poor fit between what is on offer and what is needed' (Hayton 1997, p.19).

That a high proportion of the building and construction industry is small business is highly significant. Work situations in general are not inherently training or learning environments: their primary business is to make money, not to develop either their workers or people on any form of work experience. However, when these work situations are very small ones, the disinclination to train is even more powerful. Firebrace (1995, p.231) has strongly put the case against training, especially externally, on behalf of small business operators. She identifies with those many small businesses that 'find it difficult to place any real value on external training providers', arguing that they prefer to 'buy' skills already packaged in the external labour market. Spending hard-earned profits on 'training of dubious short-term value' is not high on the agenda, and an even greater barrier is the real cost and inconvenience of maintaining momentum during the absence of staff on external programs.

One of the ways of minimising the difficulties of small businesses with training is the promotion of group training arrangements. The federal budget of 1996–97 gave official voice to this initiative in declaring such arrangements 'as ideally placed to promote and facilitate the expansion of apprenticeships and traineeships'. It allocated funding to increase threefold the numbers of apprentices/trainees in group training over the next three years. These arrangements mean that apprentices/trainees are employed by one group training company but are 'leased' for all or part of the training period to other enterprises (known as 'host employers' or 'host trainers') where they receive practical on-the-job training. Thus individual host employers gain the labour of apprentices/trainees without having to enter into contracts of training. A key feature is the rotation of apprentices among host employers.

This concept, 'a uniquely Australian approach to skills formation' (Quinn 1995, p.465), formally emerged in 1981. By June 1996, there were 127 group training schemes across Australia providing employment and training opportunities for approximately 21 000 apprentices/trainees (ANTA 1997, p.2). Butcher (1995) and Donaldson (1995) claim a number

of benefits for group training schemes. They maintain that a group training scheme:

- expands the skills base of apprentices, particularly in specialised and fragmented industries, by allowing experience in a variety of workplaces
- capitalises on the short-term fluctuations in demand for labour on the part of especially small employers by providing flexibility
- provides security of employment for apprentices
- fosters a strong, caring relationship between employers and apprentices
- allows small employers to participate in the training effort
- permits suitable matches and provides a mechanism for resolving any difficulties in relationships between host employers and apprentices

An example from the construction industry often cited as a success story is the Housing Industry Youth Employment and Skills Training Program (HIYESTP—colloquially known as the 'high step' program). First piloted at Liverpool in New South Wales in 1992, it had expanded to embrace six States and Territories and 17 group training companies three years later (Quinn 1995, pp.472-473). A key feature is the delivery of TAFE formal 'classroom' training on site and the use of trainers providing practical instruction on site.

The Housing Industry Association

The HIA operates as a group training scheme. It formally began in September 1964, although its roots lay in the formation in Victoria of the Builders and Allied Trades' Association in 1946. That original association was formed to seek a more equitable distribution of limited building materials and other problems, and to help protect and promote the interests of the smaller builders and others in the housing industry (*Housing* 1995, p.58). Today, the HIA is a national body of almost 30 000 members, most of whom are practising builders, trade sub-contractors, manufacturers and suppliers to the housing industry (*Housing* 1996–97, p.28).

The Association employs apprentices who are taken in on a rolling basis when work can be guaranteed for them. They sign a 48-month contract, and the HIA places them with individual builders, carpenters or tilers for their site-based work and training. The apprentice stays with their host employer for as long as practical, sometimes for the entire 48-month period. The host employers have a list of modules and the times when TAFE will be offering them. Apprentices attend the modules when they

are programmed. The normal pattern is for an apprentice to spend eight weeks in TAFE in each of the first and second years and six weeks in the third year, making a total of 22 weeks at TAFE. No training at TAFE takes place in the fourth year. Currently all assessment is done off the job. The HIA also provides some off-site training in its central office training rooms; for example, on aspects of small business management.

The next chapter now analyses the literature on notions of training and learning to provide a theoretical background on learning environments before reporting on the research design and methodology of this study.

3 Training and learning environments

In examining the learning environments of the worksite and TAFE institute, this study needs to explore some foundational ideas from research carried out on workplace learning in recent years. The idea of a learning environment has the general meaning of arranged circumstances which are thought somehow to invite or generate learning. This has had considerable attention from researchers and is briefly introduced in the first part of this chapter.

The rest of this chapter examines the allied notions of learning and training—or facilitated learning—which are deeply embedded within any concept of learning environment. Learning and facilitated learning have themselves a range of meanings which shape the way they are understood and applied. They receive additional modification from the contexts—in this case, the worksite and TAFE institute—in which they are pursued. The significance of these contexts forms the final part in this chapter.

Learning environments

A learning environment is defined by Learmonth as a 'workplace environment which encourages, recognises and responds to a wide variety of learning programs and opportunities' (1993, p.91). The term is based on a biological metaphor. An organism is surrounded by and interacts with an environment which provides it with the nutrient and climactic conditions for its continued life and growth. In its turn, the organism processes elements of the environment and produces by-products, like carbon dioxide in the case of plants, which have a modificatory influence on its environment.

This cycle of influence has its analogue when the worksite or TAFE institute are imagined as environments in which the apprentices are located and which produce a range of nutrients conducive to learning. Following this metaphor the organism, here imagined as the apprentice, ingests learning nutrients from the environments, develops and at the same time provides by-products, which in turn contribute to and may modify the learning environments.

The environment metaphor tends to be used to refer to conditions in the workplace conducive to employees who are to acquire learning skills and knowledge which will increase their contribution to the work's profitability. A recent manual designed to assist businesses turn their workplaces into learning environments lists seven characteristics common to workplaces 'seen as having an effective learning environment' (Learmonth 1993, p.4). These are a shared vision, co-operative style, team approach, support for employee development, provision of individually designed development plans for employees, rewards for learning, risk-taking and a flexible approach to workplace training.

The organic metaphor contains an implied functionalism in that it imagines the workplace as a balanced and predictable system like a tropical fruit growing in a greenhouse. When heat, light, water and other nutrients in the environment are manipulated in certain ways, predictable results can be forecast. Welton (1991, p.39), citing Leymann (1989, p.287), points out that the organic metaphor has limits since it obscures the fact that it is always people who behave, learn, defend themselves or are creative. The workplace is not a balanced system but one that is being constantly negotiated according to the interests and power of its participants.

It is the power relations present in the work environment which add a particular need for the learning environment, which is imagined to be so configured that it fosters three kinds of learning. Firstly, learning to do with work—knowledge, skills and attitudes related to work tasks; secondly, learning to do with how to learn and be conscious of oneself as learner. And thirdly, learning to do with what Kornbluh and Greene (1989, p.259) call 'influence competencies'—skills which employees in particular need to influence the work situation and negotiate appropriate conditions for their life at work and their learning there.

These notions of learning environments encapsulate allied notions of learning and training. In this context, the word 'training' immediately generates a major distinction between two kinds of training. There is training as something a person, and in this case an adult, receives, so that it becomes a form of adult learning; and training as something which is done to an adult, so that it is a transitive activity, a form of adult teaching or instructing.

This study's exploration of on and off-job sites as learning environments needs to examine learning from three perspectives:

- that learning itself can have a variety of meanings
- that the learning in question is facilitated learning—it is seen as an end point of training processes about which there is also a range of ideas and ideals
- that learning as a facilitated process is also contextualised—it becomes further modified in so far as it is sponsored by and located in the worksite and TAFE institute with the distinctive cultures and values of each site

The rest of this chapter provides an exploration of these three perspectives as they relate to apprentices in on and off-job learning environments.

Meanings of learning

Learning in whatever setting has many definitions. Little et al., speaking of adult learning in instructional contexts, define learning as a:

> *more or less permanent change in human consciousness, where consciousness includes the mental activities of attending, perceiving, remembering and thinking as well as the feelings and actions associated with these mental activities.* (Little et al. 1991, p.29)

This definition accommodates the wide range of planned and unplanned activities humans call learning. Some of these are commonly understood; for example, learning how to use a machine, or learning how to apply a trigonometrical formula to calculate the pitch of a roof. Learning how is often accompanied by learning that: for example, learning that iron rusts in the weather and is protected by galvanising, or that concrete needs to be kept wet to 'cure' after pouring.

These ideas about learning tend to locate the learner as in some way set apart from, and taking in, new knowledge which is 'out there'. Apart from these concepts, there is another whole set of meanings in which learning is not about taking something in but about mulling over some experience which has already been named in a certain way but is now somehow made problematic. Learning in this sense occurs when people change their understandings of an experience and the meaning attributed to it or change their sense of self. It can be the process of re-framing and re-naming experiences according to a newly adopted theory. Thus what might have been referred to as 'having a bit of a lark with a new apprentice' may be re-classified as bullying after reflection about making a workplace safe and liveable.

An apprentice who talks about 'learning things', referring to information and skills, will also talk about learning to be a carpenter or builder, of realising what being a carpenter or builder means and what it involves in terms of benefits and challenges.

Aims of learning

Squires (1993, p.88) suggested there were three general goals of human learning, particularly when it was somehow generated by education during experience—these were 'gaining knowledge, culture and ability'. Knowledge in this general sense is located in bodies of organised knowledge or disciplines; culture refers to ways of being in a society in terms of its values and customs; and ability refers to skills, growth and development.

It seems clear that apprenticeship knowledge would need to involve the three levels. Carpentry apprentices need to gain considerable knowledge; for example, information on materials, measurements, by-laws and products involved in carpentry. They would also need to learn the culture and customs of carpentry—how carpenters talk about what they value and how they maintain their identity as carpenters. Finally, they need to master the manual skills of fixing, finishing and joining, reading plans, estimating quantities and costs, and getting on with clients.

It is also necessary to add to Squires' three categories of learning goals an additional oneæoriginally developed by Brundage and MacKeracher (1980)—which is linked to the culture category. It refers to reflection through which a person pursues a goal of getting to know or learns who they are and what they want to be. For apprentices, this form of reflective learning is important since through it they become committed, to or alienated from, their work identity as it unfolds in the course of their training.

One other dimension of human learning which has application to apprenticeship training has been developed by critical theorists like Freire and Mezirow. It is reflexive rather than reflective. Its goal is to learn whose interests are being served by the structured relationships surrounding their training and vocation such as the tendering process, the labour contracts entered into and the hierarchies in the building industry. This is of particular interest when carpentry concerns industrial health and safety, various wage agreements, unionism and its links with industry and the source of its raw material—forests, mines and the like. Critical learning is often not directly pursued, but some would say it should be. Many of the questions posed by critical thinkers are encountered in the realities of the workplace—the peaks and troughs in the industry—and are at least informally discussed during lunch breaks.

Styles of learning

Considerable literature has explored ways in which apprentice learning is shaped in response to influences sponsored by the workplace and off-job provider. Depending on the apprentices' level of control over the learning processes, apprentice learning can range on a continuum from trainer controlled, through self-paced, self-managed to self-directed forms. The terms used have not a universal acceptance but are offered here in a consistent pattern. Trainer-controlled learning is when the entire learning project (ideas, processes, assessment) is organised and directed by the trainer. Self-paced learning is when the apprentice can choose when to address the learning projects which are set by the trainer. Self-managed learning is when the apprentice chooses the topic and its organisation and presents the final product for assessment. Self-directed learning in its pure form is auto-didactic, where the apprentice chooses the learning project, its methods, processes and assessment (Candy 1991).

Linked to questions of control and direction in apprentice learning in on and off-job sites is the question of its so-called depth. Biggs (1987), in his research into students' engagement in learning, distinguished between various learning types. Surface learning (or rote learning) is where students have no real interest in the subject-matter and memorise formulae and ideas according to how they are perceived to please the trainer. Achieving learning refers to the limited commitment of serious students who have little leisure or 'margin' in their lives and seek constantly to focus their learning on the core of the subject being studied in order to do as well as can be expected within their available time and resources. The final category, deep learning, refers to the learning of those interested in the topic and motivated to seek deep understanding of it and its relation to other ideas.

Apprentice learning, which culminates in the learner 'becoming' a tradesperson and meeting all kinds of professional requirements, demands, almost by definition, a degree of deep learning. The depth and breadth of this learning will also impact on the apprentices' orientation to lifelong learning—updating skills, exploring new ways of doing things, self-evaluating performance which is supposed to continue into work life after apprenticeship, and personal and social life (Candy et al. 1994).

It is clear from this brief exploration that apprentice training appears as rich, multiplex and deep. A major issue then is whether training programs for apprentices cater for the breadth and depth of such learning. This study is an exploration of this issue. But first, it is useful to examine radical differences in widely held ideas about learning, particularly when ways to facilitate it are concerned. Two general approaches have emerged which have been named positivism and constructivism.

Theories of learning

In his major survey of the literature on learning, Candy (1991, p.430) identified two fundamental approaches to learning, the positivist and the constructivist, which have had a great influence on all kinds of training. The positivist view borrows from the language and approach of natural science. It sees learning as a process of 'taking on' knowledge conceived as somehow 'out there' and objectivised which can be transferred to a learner and the level of transference somehow measured.

One current authority on workplace learning, Billett (1996a), centres his reflection on learning in the workplace as a process of constructing vocational knowledge (p.44.). He then explores the dimensions of such vocational knowledge and suggests guidelines for educational curriculum to develop desirable elements of such knowledge. His approach, which begins by abstracting and substantifying workplace

knowledge from the actual contextualised acts of knowing, and then analysing its logical elements, makes a substantial contribution to understanding the dimensions of such workplace learning. Even though he suggests he is adopting a constructivist approach (p.43), which he tends to do in the later part of his paper, the notions of learning he uses in the early part of his paper have elements of the positivist tradition with the strengths and weaknesses of such an approach.

The constructivist view, building on research into epistemology and language, sees learning as a process of making meaning which humans do collaboratively in their conversations which are linked to their experience and exploration of the world. This dichotomy between positivism and constructivism was noted by Bruner (1990, p.4) when he spoke of the difference between ideas of learning understood as the 'processing of information' and those seen more as the 'construction of meaning'.

Constructivist views generate a range of approaches to learning. Thus, for example, the cognitivist constructivist view sees learning as the confluence of its various cognitive processes such as abstraction, comparison and generalisation. Social constructivist views see learning as ways in which humans fit into and take their place in society. Learning from this perspective tends to be linked to social processes through which learning is facilitated like interaction, affirmation, acceptance, listening, discussing, approval or disapproval. A third constructivist view of learning can be called psychological. It is more concerned with human learning as a process of self-realisation, personal development and transformation. Learning from this perspective tends to be linked to personal actions through which a person reflects on, and tries to make sense of, their experiences in the light of their own personal desires, ambitions and sense of self.

McIntyre, drawing on the work of Schutz (1967), a key constructivist thinker, highlights the essentially social dimensions of human learning. He suggests that a person takes on new skills or new information by being in a different situation and becoming different to suit that situation. The person, in the act of taking on this new identity, becomes a learner and learns while they are acting out of the new identity in situations appropriate to that identity. The acting out of the new identity occurs where that identity is accepted and affirmed. As he writes:

> *A person assumes the identity of [a carpenter, for example] and learns both to carry out activities (the practice) and learns the meaning of this practice . . . The meanings of the practice constitute a perspective that is developed by learning about and learning through the experience of the practice . . . Experiences give rise to meanings and in turn situations are experienced in terms of these meanings . . . The process of learning is one of constructing and then deploying these understandings in specific situations.* (McIntyre 1996, pp.35-36)

The positivist/constructivist dialectic affects approaches to theorising about on and off-job learning. Positivist and constructivist views of learning have influenced and been influenced by teaching and educational practice. In our study of apprentices' learning, the central idea of learning tends to be an activity pursued directly or indirectly by a person according to their agendas and conceptions influenced radically by the situations in which their new identity is expressed. As such, it complements the more objectified views of positivist approaches.

Welton (1991), following Freire (1985) and Mezirow (1991), took the constructivist view into the critical area. According to this view, not only is learning an action aimed at gaining knowledge, it is also an action pursued according to the interests and priorities of the apprentice in the first instance, and those interests and priorities are shaped by those of workplace mentors and TAFE teachers. This critical perspective highlights the contextual nature of learning which can often include exchanges of goods and favours such as praise or blame, preferment or demotion and the like during and after the training process. These interests and how they are catered for are highlighted in this approach.

This completes the introduction to ideas of learning that provide a contextual background to this study. The following part explores ideas of learning when it is in some way taught, which in this instance is taken broadly to mean that it is somehow generated by facilitative processes. These range from facilitative experiences such as formal teaching, to informal mentoring experienced on the job and to various forms of problem-solving carried on with other workers, apprentices and teachers. Being taught involves some kind of engagement with learning generative processes which are influenced radically by host employers' notions of learning facilitation embedded in the experiences they provide for their apprentices. Thus host employers who train apprentices on the job will display, consciously or unconsciously, a range of ideas about learning and training embedded in the way they pursue the processes of training, such as showing, encouraging, assessing and so on. The next part of this chapter therefore examines these various dimensions of facilitated learning. It explores elements in the processes of learning facilitation and then looks at the dimensions of some of the learning they tend to generate.

Learning facilitation

Types of learning facilitation

Four dimensions of learning facilitation are significant here. The first is its informal or formal character. The second is its ideological character—that when learning is promoted there is always an ideology driving it. The third is the mode of engagement of the learning facilitator which can be

directive and non-directive. The final element is its operational characteristics which are linked to the directive and non-directive style.

One of the significant distinctions in adult education has been between formal, non-formal, informal and incidental learning facilitation (Foley 1995, p.xiv). Formal refers to a structured for-credit course with clear learning objectives and processes as in classroom programs leading to a recognised certificate or diploma. Non-formal refers to organised learning experiences which provide skills but are not certificated into an acknowledged award. These are commonly encountered when host employers and apprentices might attend a training day on a new building technique or a change in government regulations. In these cases, the focus is on the 'things to be taught' being communicated or 'transferred' effectively rather than on the learner's development, generated through such knowledge being certificated.

Informal refers to the kind of learning that takes place when people consciously try to learn from their experiences but do not undertake formal instruction. Examples of informal learning facilitation in the apprentice program would be 'de-briefing' sessions organised by the Housing Industry Association. In these sessions, apprentices are encouraged to review and discuss events and challenging moments on the job and at TAFE in order to learn from their own and others' experiences. Incidental learning facilitation is not deliberately generated by a learning facilitator but by the various environments in which learners may find themselves. It occurs while people perform other actions or are involved in an action with others—in this case, when an apprentice is involved with a master tradesperson and, while performing routine tasks, begins to pick up the approach and style of the mentor. This could include concern for detail, ethical approaches to customers, co-operation or competition with other host employers.

> *Such learning is incidental to the activity in which the person is involved,and is often tacit and not seen as learning, at least not at the time of its occurrence.* (Foley 1995, p.xiv)

The learning pursued by apprentices is another interesting instance where, besides the formal learning—facilitative activities in training and information programs—there is a wealth of informal and incidental learning experiences in every site visit and work participation.

As is the way of it, informal and incidental learning are not always under the same amount of direction that is attempted in formal programs. It is possible that apprentices may learn things informally and incidentally which their mentors may find unsatisfactory. Apprentices often model themselves on their mentors. During the interviews in this project, many apprentices were found wearing clothing similar to that of their host employer. There can be huge amounts of incidental learning which, by definition, is the one most unremarked or tacit. This is because it is

facilitated by the host employer's approach to quality, honesty, equal opportunities, racial and sexual discrimination and prejudice (Marsick & Watkins 1991).

The degree of reduction in a facilitated learning project is the degree to which a specific learning objective is spelt out and, as it were, separated from related activities. In some cases a specific objective in training is defined and focussed upon. For example, a trainer might focus attention on how to use a nail gun, even to the point of holding up a sequence of work so that the apprentice can master the skill and then fit into the work team and get up to speed with competence and safety. The trainer may instruct the apprentice and watch while the nail gun is being used, correcting errors and praising good performance. At many other times, however, the targetted learning may be generalised around concepts like 'fitting in' or 'following the expert'. Here the process is foregrounded more than the desired outcome which may be seen as a range of possibilities.

In contemporary thought and practice, there is a strong notion that the specific learning function in humans can be more or less directly controlled and information 'transferred' from the trainer or learning package, almost like an injection. In his now classic text, Kidd (1973, p.18) referred to this as the 'hole in the head' theory of learning:

> *as if it were some process by which an entrance is somehow forced into the brain and facts are poured in, or pressed in, or stamped in . . . Organise your facts carefully; use repetition and other devices to be sure that they are properly injected into the mind.* (Kidd 1973, p.18)

Learning as an outcome of such training can be imagined more in the positivist tradition, as something objectified to be constructed, shaped, injected and its retention measured. Although Kidd dismissed these ideas as laughable, they have considerable currency in some contemporary thinking. One often hears public figures demanding that people 'be educated' to take on some desirable disposition or desist from an undesirable one, where the notion of education has this strong, transitive 'moulding' connotation.

This environment requires recipient, accepting learners who present themselves as clay before the potter or an open jug receiving the 'liquid of learning'. The question arises as to the feasibility of such required acceptance, even under 'drill' conditions such as military training or other forms of indentured service. In other words, how are these instructing/learning environments accepted in real life?

One of the major refutations of these behaviourist and technicist ideas came from the pivotal study on adult learning by Tough carried out more than 20 years ago. In this famous study called *The adult's learning project* (1971), he was able to demonstrate that human adult learning was a much more holistic process. According to his research, adults see most of

their learning taking place without a teacher. If they decide to enter an educational or training program, where they are taught by another, they allow their autonomous learning processes to be influenced and to a greater or lesser extent assessed by their teacher. The significant point for this present study is that the learning which is promoted through various training processes is almost certainly occurring with other kinds of learning being pursued independently by the apprentice. As Little et al. wrote (1991, p.29): 'While instructors can modify an instructional environment (supposedly to enhance learning), they can only guide the learning process but they cannot control it directly'.

Many trainers hold a radically different view from the 'hole in the head' method. They seek to engage with and shape the apprentices' own learning agendas rather than have the kind of mismatch which occurs when it is clear they are pursuing their own learning in resistance to or in spite of the trainer's instructional agenda. Brookfield, in the opening of his book on understanding and facilitating adult learning, spoke about the multiplex learning processes which are generated in almost every teaching/learning exchange:

> *When adults teach and learn in one another's company, they find themselves engaging in a challenging, passionate and creative activity. The acts of teaching and learning—and the creation and alteration of our beliefs, values, actions, relationships and social forms that result from this—are ways in which we realise our humanity.* (Brookfield 1986, p.1)

Directive and non-directive approaches can operate at the macro level shaping every process from initial engagement through various learning facilitative processes. This next set of categories is particularly focussed on the learning facilitative processes themselves.

Ideals of learning facilitation

In their early work, Brundage and MacKeracher (1980) identified three philosophical notions and pointed out their influence on various forms of institutionally sponsored training. The first is liberalism, which inclines people to respect the individual's quest for learning and is sympathetic to educational processes which respect learners' personal search for meaning. The second is a conservative philosophy which requires citizens to share a body of socially validated knowledge, values and skills. It is sympathetic to a more positivistic view of learning as a process of gaining defined knowledge and skills. The third approach, which the authors suggest is influenced by socialist ideals, inclines people to attend to the rights of citizens and to critique any ideas or assumptions of society which wittingly or unwittingly support inequality and prejudice.

Edgar has stressed that the learning humans pursue for personal and social development complements the learning they engage in for technical and instrumental development. He writes:

> *We draw a distinction, but not a dichotomy, between teaching [and the learning it sponsors] to meet economic [and technical] development goals and education [and the learning it sponsors] to meet individual and social development goals . . . Social development goals . . . require different learning strategies from skills training. Training implies a master-pupil relationship where skills are taught and transferred . . . it is certainly not a suitable mode for learning of a personal and/or social development kind . . . At a personal level the goal is to enhance one's understanding of and control over some aspect of the life environment. At a community level, it is to enhance the quality of community life and the capacity of adults to operate competently as citizens of the body politic and as members of family and community groups.* (Edgar 1987, pp.22-23)

At least as encountered in training programs, learning facilitation tends to involve an engagement between a learner and a learning facilitator. The learning facilitator has somehow to engage with the learner in such a way that a learning facilitative relationship is established. This rather cumbersome language points to the deliberative nature of learning itself. A huge amount of learning in the apprenticeship process is a matter of deliberate choice. Apprentices sitting in a training room or working on the job with their host employer need to take on the pre-disposing attitudes required to allow another human, or man-made product like a module, to generate learning. They may or they may not do this.

Operational approaches to learning facilitation

Facilitated learning is hugely coloured by the approaches used by the host employer or TAFE teacher. The following represents four of the major approaches. In many cases, more than one approach can be found in any learning event.

Behaviourist approaches

One of the traditional training approaches is often linked to drill and forms of direct instruction but is, in fact, much more widespread. This is behaviourism, which treats learning in so far as it is a behaviour pursued according to human choice which can be influenced by the presentation or removal of rewards. When the builder Sam claps Mario on the shoulder at the end of his first day's work, Mario's behaviour receives a considerable reward. All else being equal, Mario—considered as an organism emitting behaviours in response to stimuli from the environment—is likely to emit more of the behaviour that earned him this approval of his boss.

The competency movement has successfully used elements of behaviourism to encourage clearly defined and measurable behavioural outcomes as a foundation for its programs. This approach has been valued for its precision and focus. Apprentices, for example, wanting to know about arc-welding rods and appropriate ways of using them, have

been able to examine a series of clearly presented learning modules in their TAFE studies. As with all approaches, this has its downside, which philosophically is highlighted between the approaches of the off and on-job sites. In TAFE, it is possible to focus on competencies and use closed learning objectives. In the workplace, the focus is more on fitting in to complex work processes, with open-ended learning objectives providing more opportunities for informal learning.

In this way, competency-based approaches and open-ended participative approaches have the capacity to complement and support each other. Otherwise, as Field says,

> *as it is currently being implemented . . . competency-based training tends to overemphasise the routine, visible aspects of work and to neglect 'under the surface' skills like problem solving and information handling.*
>
> (Field 1990, p.30)

Cognitivist approaches

Considerable work has been pursued by cognitive psychologists who have turned their attention to the way the human mind manages learning related to work. The reference to Billett earlier and his phrase 'constructing vocational knowledge' can be linked to parallel work on the 'acquisition of expertise' (Tennant & Pogson 1995, p.55). These contributions have shed light on the way the human mind works when developing skills to expert level. This was also illuminated in studies by Benner (1984) who suggested ways to generate a movement from novice to competent performer to expert in the development of skills in a profession or trade. Benner also outlined qualitative differences in the kind of thinking, judging and performing associated with each stage.

According to Chi et al. (1988, cited in Tennant & Pogson 1995, pp.55,56), experts:

- excel mainly in their own domains
- perceive large meaningful patterns in their domains
- are faster and more economical
- have superior memory, [but memory] is restricted to [their] particular domain
- spend a great deal of time analyzing a problem qualitatively—this is especially the case with . . . ill-structured problems
- have strong self-monitoring skills—they are aware of their errors and [of] the complexity of the problems confronting them

Tennant and Pogson recommend the research of Stevenson (1991) and Beven (1994) in building on these ideas and avoiding pitfalls in their application.

Humanistic approaches

The humanistic approach has an alternative view of learning which is built on the inherent desire of humans to know, to seek meaning and to solve problems (Rogers 1961, 1983). The focus is on the problem-solving and self-actualising inclinations of the learner. The self-realising, responsible learner becomes the centre of the learning project rather than specific behaviours. Strategies born of this approach stress respectful discussion and dialogue and affirmation of the apprentices' autonomy in learning and the value of their learning judgment and choice. For some trainers, training for the apprentice is offered in collaboration with work where reasons behind choices and procedures are made transparent. The apprentice gets to see and participate in what is happening and to have a go where appropriate and when they feel ready. This approach creates what is considered to be a nurturing, penetrable environment and the learning is left to happen when it does. This has a foundation in a holistic view of 'learning by resonation', characteristic of much informal learning in families. In these cases, expertise is tranferred almost unconsciously in the children's participation in domestic activities with their parents, taking an increasing part as they get the feel for the activity and develop the specific skills required for its execution. In this approach to training, apprentices are permitted to engage in a shared activity with their mentors, with the standing invitation to take part at deeper levels depending on their confidence, competence and choice. As such, the approach is more about creating a general learning context and affirming the apprentices' autonomy and desire and ability to learn, allowing them to convert it to a learning environment by their own choice.

Critical approaches

Learning facilitation under this approach challenges apprentices to examine critically actions pursued in the workplace, looking for the interests and assumptions embedded in them. This approach assists apprentices to become aware of possible sexism and/or racism in their approach to work and disposes them to look at the implications within building activities and choices. Examples of this wider perspective would include attention to ecology in building, minimising and re-cycling waste using appropriate timber.

In practice, it is easy to see how a number of these approaches to learning facilitation can co-exist if room is made for that to occur. This brief visiting of approaches to learning facilitation flows on to a consideration of the kinds of learning that emerge, or are intended to emerge, at the end of such facilitative activity.

Types of facilitated learning

In the context of this study, facilitated learning has two significant dimensions. The first is the degree to which the apprentice or the trainer initiated the learning in a specific learning project. The second is the degree to which the apprentice has control over the way the facilitated learning is organised. These two dimensions may be considered as two continua as follows.

Dimensions	Continua of initiation and direction in learning/training	
Degree of initiation	Mostly on the apprentice's initiative . . .	. . . mostly on the trainer's initiative
Degree of direction	Directed by the apprentice . . .	. . . directed by the trainer

Facilitated learning can be initiated pro-actively when people engage a teacher to teach them for a purpose. The usual form this takes is when an apprentice enrols in TAFE training programs. Other facilitated learning can be unrequested and re-actively initiated. Learners can be invited to engage in educational activities sometimes to increase their knowledge and skills but often to challenge their personal and social stance in the world. The workplace or TAFE may promote, for example, equal opportunity or anti-racism in their courses and generate re-active learning about something the apprentices may not otherwise ever have considered. Re-active learning in such interventionist programs can be resistant; it can be reflective and critical, or it can be submissive and accepting. Learning pursued in more confronting programs may have elements of being persuaded and influenced, even brainwashed.

In more informal environments, apprentices feeling their way with workplace co-workers and mentors may also be challenged to take on a range of attitudes, even prejudices, linked to the particular culture and style of the carpentry trade as practised. Thus, for example, an apprentice, particularly a young person, may be challenged to realise what a great trade carpentry is; how pivotal it is to the building industry. They may be taught through informal processes of discussion and debate over many lunches to be wary of certain architects, building inspectors, members of other trades and members of other ethnic groups, and supportive of others. The apprentice may not have planned to learn such things. However, these issues may be placed so strongly on the informal learning agenda, and their importance magnified by the daily interactions of the job, that the apprentice would be forced to form an opinion in regard to such things and to adopt a certain stance accordingly.

Apart from the modes of initiation, there is also the degree of self-direction in the processes of facilitated learning in the on-job and off-job environments.

Facilitated learning can be generated and continued by processes ranging from co-operative learning circles to didactic teacher-controlled

programs; the latter being more commonly found in formal workplace and TAFE programs. The degree of self-direction in facilitated learning has become more significant due to the changing ways in which apprentices are prepared. Apprentices can no longer expect to be under the prolonged paternal care of a senior tradesperson who directs their training. In the many changes occurring in the provision of training, a high degree of self-direction is increasingly required and expected in apprentices.

The third and final perspective on learning in on and off-job environments is the characteristics it possesses because of its location in the actual worksite and TAFE institute.

Learning contexts for apprentices

In this part of the chapter, the learning contexts of the worksite and TAFE are explored according to their potentiality to generate learning; that is, their potential to become, and function as learning environments. A structural analysis is used to indicate various social forces, in the workplace and TAFE, tending to shape the kinds of learning opportunities offered to apprentices and their host employers and teachers. This provides a sense of the features of the worksite and TAFE in so far as they have a potentiality (but with no guarantee) to generate and shape learning.

Apprentice learning in the workplace and TAFE is influenced not only by the ideology and training activities espoused by the host employers and the teachers but by their own need to develop ways of surviving in the on-job and off-job environments. They need to know quickly how the workplace and institute work and what things apprentices do are most valued in each context. These learning agendas are a direct response to the experience of the worksite and the institute cultures, each with its particular dynamics which shape the ideas and ideals of apprentice learning implicit in each.

The worksite learning context

The housing industry workplace is made up of building sites where houses are being built or renovated. Building sites chosen as training sites need to be building and renovating houses quickly, safely, efficiently and competently. Building is constrained by financial pressures so that the host employer has to work at a certain rate to earn a living. It presents to the apprentice a number of vivid learning invitations to a certain kind of learning linked to a perception of being a host employer. It is this contextualisation of the host employer's work that makes the site valuable as a place to generate real learning opportunities.

At the same time, it is not a didactic site; it is an experiential, participable site and it requires from the apprentice not the stance of a detached student but the stance of an engaged co-worker. This worker knows enough to be making some kind of contribution, can fit into the 'flow' of the work and can be part of the working group 'where it is happening'. This location within the work flow means they can begin to resonate with the indefinable building rhythm and balance, the 'feel' and pace of this kind of work, and the kind of mind-set that host employers use. The workplace then becomes more of a learning site to the degree that this participable rhythm is transparent, that the apprentice can understand what is happening and why.

The major stakeholders in the facilitated learning on site, apart from the apprentice, are the host employer themself and the deploying agent, the Housing Industry Association, which places apprentices in various worksites and charges out their labour at a reduced price in exchange for some training. Each of the stakeholders experiences some ambiguity. The housing industry liaison person, in charging for the service of the apprentice, is indicating that they already have useable skills that can be charged for. On the other hand, it is assumed those skills are to be developed in the work experiences provided. The host employer needs to get work done without spending all the time showing the apprentice how to do something that they as yet do not know, undoing incorrectly done work or protecting the apprentice from unforeseen accidents particularly linked to unfamiliar machines. In order to do this, the host employer has to be working on participable work which can employ participants with varying skills. There is then a temptation to arrange repetitive work such as nailing wall-board on long unimpeded walls or nailing pre-cut noggins between wall studs, and to leave the apprentice to do this while getting on with more challenging work without the apprentice.

Where it is not possible to arrange such participable work, the host employer may be required to carry out fine, difficult work with easily damaged and expensive-to-replace materials. This may again generate a temptation to keep the apprentice in 'watch but don't touch' mode. This will mean the apprentice is costing the host employer money to stand watching but is not actually getting the 'feel'of the work.

In the context of the study, 'workplace trainers' are host employers/carpenters working on their houses. Many are self-employed and required to do the paperwork of a small business while engaging in the practicalities of building.

There are many ways of integrating an apprentice into work being done in such a way that there are learning opportunities. Almost every kind of learning facilitation may occur in such cases. For example, some host employers will have a strict directive and behaviourist approach such that 'there is one way and this is it and you should reproduce what I am doing as I show you'. Others may have a more cognitivist approach and

want to interpret what they are doing so that the apprentice understands and, with their understanding, will be able to carry out similar work in the future. Others may have a *laissez-faire* attitude of letting the working/learning relationship emerge in the processes of shared work.

Apart from the attitude of the host employers towards their apprentices, there is also the level of disclosure that they are prepared to allow. The host employer may release or hold back information and skills. The tricks of the trade, smart ways to tender, the peccadilloes of this or that inspector may be information released or retained at the choice of the host employer. The workplace host employer then has to be 'managed' by the apprentice in order to generate the maximum learning opportunities. The apprentice has to be 'managed' by the host employer to generate the greatest return in learning and productivity and avoidance of injury or breakage.

A building site in this day and age is a site of competitive planning and execution. There is so little margin in the competitive tendering that host employers have to use each minute efficiently to stay ahead. In this context, apprentices could be perceived as getting in the way. On the other hand, their labour within their competence is available at a cheaper rate. As becomes clear later in this report, many host employers were interested in seeing apprentices become knowledgeable and were prepared to put themselves out to some extent. They were happy to do this as long as they didn't go out of business and the apprentices appreciated what was being done for them.

The TAFE learning context

The TAFE institute is a site where 'formalised arrangements to facilitate learning are, in fact, distinguished by the deliberate order and intentionality imposed on the instructor-learner relationship' (Little et al. 1991, p.30).

TAFE is a practical but generalisable learning site. TAFE teaching tends to engage students in practical exercises, versions of which are commonly pursued in most building sites at different times depending on the progress and complexity of a job. These practical, at least partly de-contextualised projects, are pursued more at the pace of the learner than the workplace so that there is time to explore two goals. One is to explore the various scientific and mathematical theories underlying procedures such as metallurgy for welding, geometry for roof pitching and thermal physics for insulation. The other is to generate competence in the students who can practise and perfect their skills without on-the-job pressures.

The TAFE interests are linked to the interests of its members, clients, funding agents and the community within which it is located. Host employers and their professional associations like the Housing Industry Association want it to support teaching in disciplines relevant to the

building trade. The growing number of professional administrators in institutes seek to ensure that they perform efficiently according to their mission and mandate and that they can pay their bills. Where institutes are left to find a proportion of their income, and this is increasingly the case, such a task becomes a major concern and can exert influence on the way teachers carry out their work.

Apart from the interests of the institute's staff and students, there are the funding agents supporting the programs whose influence and requirements of accountability exert considerable influence on the way funds are allocated and the expenditure evaluated. There is considerable pressure on institutes to account for their activities in measurable ways which, in turn, can influence the way their programs are conducted.

At the TAFE institute, apprentice interests centre around being taught clearly, about becoming knowledgeable and eventually qualified. Students completing their course of study expect to be somehow assessed and approved as competent. Many also expect that their qualification will give them trade status and help them gain employment.

There are also the members of the wider community who have an interest in the role and activities of TAFE institutes hopefully as a place where they (and particularly their children) can gain access and receive high quality, vocational education. They also hope it will be a place which produces well-trained tradespeople to take up positions in industry.

Not every kind of learning is the natural object of these different vested interests. Where interests in the institutes may feel the need to measure their products, it is likely to favour kinds of learning which lend themselves to being measured. On the other hand, where other interests in the institutes seek to promote a high degree of professionalism and application, it is likely to favour deep and creative learning rather than surface or rote learning, even where it can be more easily measured.

Most TAFE teachers have a trade and educational background. It is their task to guide the learning of apprentices from the particularities of a workplace to more general principles. Under contemporary competency-based approaches, the teachers are finding that they are being increasingly required to support the apprentices while they engage specific learning modules relating to various elements of building knowledge (rather than instructing them directly), and to assess their performance.

Learning in institutional settings has traditionally been concerned with what Squires refers to as bodies of knowledge, disciplines or interdisciplinary fields. As he wrote, 'the criteria used in planning and assessing courses are primarily epistemological criteria, to do with reasoning, evidence, argument, verification, logic and so on' (1993, p.89).

Many teachers and students would challenge the narrowness of this view which seems to be shared by Ramsden:

> *Many students can juggle formulae and reproduce memorised textbook knowledge while not understanding their subjects in a way that is helpful for solving real problems . . . Learning [needs to involve] a change in understanding.* (Ramsden 1992, p.4)

While commending this movement away from cruder forms of rote learning, there is still the sense that these ideas of desirable learning in institutes may have omitted an important factor in their definition of learning. This is the critical capacity to stand back from a given learning project and see in what way its assumptions may be serving various social and political interests. Recent research into improving the quality of teaching at universities (Higher Training Council 1992; AVCC 1993) is based on this broader view of learning which seems to be the case in apprenticeship training as well (Moore & Smith 1994, p.24). Learning which is valued should be independent, collaborative, concerned with how to learn, and laying a foundation for lifelong learning. It should also develop thinking skills, be critical and reflective, meet high trainer standards, make critical assessment of and contribution to the society in which the students live and counter all forms of social oppression (Quality in Teaching and Learning Working Party 1993).

This final section dealing with the contexts of learning and training needs to refer briefly to the internal context of the learner's role as an apprentice. They are not learning purely out of interest. It may have started in this way but it is now formalised and located. The apprentice's learning is not purely something they can assess according to their interests. It will be assessed by others according to their style and priorities. It is this last fact that creates a kind of internal context for the apprentice's learning which exercises considerable influence on what the apprentice chooses to learn, the amount of time taken and the level of expertise considered appropriate.

The apprentice is perceived to have some labour potentiality which has a monetary value in the ideas of the host employers taking them on. This also has a downside since apprentices are not as yet competent and require hands-on training which may cost time and slow, or even stop, the host employer's working rhythm. The apprentice has to tread the fine line between participating without knowing why something is being done in the way it is (which makes it almost impossible to learn in any deep and meaningful way) and distracting the host employer and breaking up the rhythm of the work with many questions. Learning in this context is often about 'catching on' rather than 'being told'.

This chapter gives an introduction to notions of learning, facilitated learning and the learning environments of the worksite and TAFE. It serves to introduce the research method and its agenda to explore how these three phenomena were actually experienced and accounted for by the apprentices, their worksite host employers and their TAFE teachers.

4 Research design and method

This chapter describes the processes and participants in the research. It is the third chapter dedicated to setting the scene for this project prior to moving to analysis of each of the learning environments constructed for the apprentices' learning.

The research partners

The project was a collaborative research effort between the University of South Australia (Centre for Research in Education, Equity and Work—CREEW), the Housing Industry Association (SA Division) (HIA SA) and the South Australian Department of Employment, Training and Further Education (SA DETAFE). The partners joined together from the very beginning in developing the proposal, which was to explore the nature and integration of off and on-job sites as learning environments. The involvement of both industry and provider partners with the university was integral to this exploration of models and practices.

The CREEW is one of the loose network of vocational education and training research centres across Australia, with a strong record in conducting research and consultancy within this sector. The HIA represents stakeholders' interests in the housing industry and is in an important position in relation to developments in training nationally. A significant feature of this industry is its small business nature, with almost 98 per cent of its establishments employing less than 20 employees. DETAFE has historically been, and still is, the principal provider of education and training to the housing industry in South Australia.

Research objectives and questions

The research objectives and questions emerged from the review of the literature. The three key objectives of this project were to:

- analyse the relative contributions of the workplace and provider environments to the learning of apprentices
- explore how they might best complement each other for the benefit of apprentices

- identify the enabling factors and barriers to establishing integrated models of training

These objectives gave rise to a number of research questions that initially helped to shape and then guide the nature and focus of the project. These research questions included:

a the nature of the learning environments

- What is the nature of the learning that is occurring within each learning environment?
- What models and strategies of learning are being applied in each learning environment and for what reasons?
- How is assessment being undertaken in each learning environment? By whom? When? How effective is it? What role does recognition of prior learning play?
- What is the role of the trainer/mentor in each learning environment?
- Which key competencies are being learnt in each learning environment? How? To what extent and level?
- What activities have been already pursued to integrate on-job with off-job training?
- How do learners describe and evaluate the different learnings they engage in?

b the effectiveness of the learning environments

- To what extent are the two types of settings effective learning environments?
- What are perceived to be the benefits of each learning environment? What are the assumptions underpinning these perceptions? What evidence is there that these benefits are being realised and these assumptions supported?

c the complementarity of the learning environments

- To what extent are the two types of learning environments complementary?
- To what extent do workplaces and providers share a common understanding of training?
- Which factors enable and which hinder the integration of on and off-job training?
- How are decisions currently being made concerning 'the best mix' of training across the two environments?

d the implications of the research

- What are the implications for career paths and training paths in industry?
- What are the implications for educational providers (e.g. TAFE)?
- What recommendations could be drawn for the review of legislation and policy?
- What recommendations could be drawn for the VET practitioner?

Research approach

The study has taken an interpretative approach. This approach seeks to uncover the constructs which people have that contain their perception of a particular experience. Interpretative research works in contrast with, and interpretative research works complementary to, more objectifying research approaches which seek to generalise about recurring characteristics that can be abstracted from human experience. It actually inquires into the kinds of ideas that people have built up about experiences they undergo (Garman 1996). Such ideas form the foundation for human choice. As was pointed out above, it is one thing to examine various systems of training provision in terms of their rationality and accessibility; what is needed, in addition, is evidence on how such provided programs are actually experienced and construed by the providers and the receivers.

Qualitative or constructivist research is concerned with exploring meanings that humans develop and place on their worlds. Denzin and Lincoln provide this significant description:

> *. . . qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials – case study, personal experience, introspective, life story, interview, observational, historical, interactional and visual texts – that describe routine and problematic moments and meanings in individuals' lives . . . hoping always to get a better fix on the subject matter at hand.*
>
> (Denzin & Lincoln 1994, p.2)

This broad approach encompasses a considerable variety of research approaches concerned with meaning in one or another. Garman (1996, p.15) identified what she called discursive communities of researchers with three approaches: post-positivist, interpretativist and critical.

The post-positivist approach tends to use quantitative, positivist tools to explore human meanings in their causes, adhering to 'the principles of

objectivity, validity and reliability as their canons for rigorous findings' (Denzin & Lincoln 1994). The foundational agenda in this approach is still to explain the phenomenon in terms of its causes: to approach the thing being studied as something that was caused by particular forces which the research process will attempt to uncover.

Anyone looking at dramatic lightning patterns in an electric, humid evening before a thunderstorm, and hearing the comment, 'yes, that's caused by static electricity building up in the clouds', may feel a strange sense of let-down. To explain the phenomenon in terms of its causes may not account for the phenomenon in terms of its significance; in other words, for what the bolt of lightning means to a person witnessing and reflecting on it. This agenda is pursued directly by the interpretativist method, the second in Garman's categories, which 'grows out of the hermeneutic orientation based on interpretation and the search for deeper understanding'. Merriam expands this:

> *. . . [the interpretative] paradigm, reality is not an objective which can be discovered and measured but rather a construction of the human mind. The [perceived] world is a highly subjective phenomenon that is interpreted rather than measured . . .* (Merriam 1991b, p.48)

Within this general interpretative grouping, a range of approaches has been developed which seeks ways to give an account of the meanings humans construct around particular topics of their life.

Following the distinction of Reason and Hawkins (1988, p.79) between explanatory and expressive modes of knowledge, the approach employed here—interpretative research—can be distinguished in its conceptual and perceptual forms. Conceptual research comes from generating knowledge by the processes of abstraction and categorisation through which humans name their experience by relating them to general ideas they already possess. The implications and values of the broader category can then be attributed to the specific experience under consideration.

The research agenda pursued here is not so much to categorise and generalise about apprentices' experience of integrated training, as to find out the meanings that the integrated training experience actually has for the apprentices. This approach can be called expressive interpretative research. It seeks to establish a portrayal of integrated training as it is experienced. In practice, this is done by collating people's actual words, images, metaphors and explanations describing the training experience to produce a kind of collage portrait of the experience of training using appropriate writing.

It also challenges researchers to seek appropriate ways to convey their insights. Readers of the prologue in this study would have noticed an alternative genre—the story—used to carry much of the information gained from interviewing the apprentices, host employers and teachers. In later chapters, the information is summarised, arrayed and grouped

according to themes rather than types and then presented interspersed with quotations from the interviewees in the written report.

Finally, in terms of research quality assurance, the criteria of quality for explanatory and expressive research approaches are different. Explanatory research is judged on its ability to explain a phenomenon in terms of the 'fit' of its categories and the objective links with its causes. Expressive research, on the other hand, is not judged in terms of its objectivity but its truth to life.

Research process

Negotiating the project steps

In the preparatory phase, a project advisory committee was established, with representatives from each of the three project partners, the relevant union and the National Centre for Vocational Education Research. Agreement was reached on project parameters, processes and timelines, and a review of the literature on the research objectives and issues was initiated. A comprehensive ethics protocol was also developed and submitted for clearance through the University's Human Research Ethics Committee. This protocol incorporated a literature review, details of the project's objectives and methodology, letters of support and approval from the research partners and the developed data collection instruments.

Collecting the data

Collection of data was through four distinct, though inter-related, research methods. A guide to the types of data from the research questions collected via each method is shown in figure 1.

a individual interviews

It was intended to include the entire population of HIA (SA) apprentice carpenters, HIA (SA) registered sub-contractors/builders, and carpentry and joinery teachers at Marleston Campus of the Douglas Mawson Institute of TAFE. From this population of a possible 86 participants, 59 semi-structured interviews were conducted during late May, June and July 1996 with 32 apprentices (of a possible 45), 21 host employers (of a possible 34) and six TAFE teachers (of a possible seven). Questions in the interview schedules are listed in appendix A.

Most interviews with the apprentices and host employers were conducted in the interviewer's car to avoid the noise of the construction site and/or to maximise opportunities for confidentiality. It was also often the only conducive place to sit out

Figure 1: Types of data collected on research questions by research method

Research questions (abbreviated)	Individual interviews (apprentices)	Individual interviews (host employers & teachers)	Selected observations	Focus groups (apprentices)	Focus groups (host employers & teachers)	Focus groups (graduate group)	Question-naires (in two States)
Kinds of attitudes apprentices possess towards learning	**						
Ways apprentices facilitate their learning	**						
How apprentices learn	**						
Nature of the learning within each environment	**	**	**				**
Models and strategies of learning applied in each environment	**	**	**				
Reasons for the models and strategies of learning applied in each environment	**	**					
Assessment within each environment	**	**	**				
Role of the trainer/mentor in each environment		**			**		
Key competencies being learned in each environment	**	**					
Activities pursued to integrate on and off-job training	**	**			**		**
Apprentices' descriptions and evaluations of their learning	**			**			
Effectiveness of each learning environment				**	**	**	**
Benefits of each learning environment				**	**	**	**
Extent of complementarity of the learning environments				**	**	**	**
Extent of shared understanding of training					**		
Factors that hinder the integration of on and off-job training				**	**	**	**
Factors that support the integration of on and off-job training				**	**	**	**
How decisions are made concerning the mix of on and off-job training					**		

of the weather and handle the audio-tape deck and interview schedules. Other interviews took place at the TAFE institute, several were conducted at the homes of apprentices and in one case at the pub.

All interviewees were reminded of the confidentiality, purpose and nature of the research project before the interview commenced. Participants were also encouraged to provide in their answers as much example, detail or story as they liked. Each interview lasted approximately one hour and was audiotaped. The texts were transcribed, and returned to the interviewees for verification prior to analysis.

b selected observations

Observations and case notes were made of the workplace contexts in which the interviews were held. These provided valuable context information.

c focus groups

Four focus groups were held in the evening through November for each of the following groups—current apprentices, first-year graduates (to provide a retrospective view on issues relating to the training they experienced), host employers and TAFE teachers. The purpose of these focus groups was to follow up on significant themes from the individual interviews. Again, each was audiotaped and the texts transcribed for analysis. Questions asked in the focus groups are listed in appendix B.

d questionnaires in two other States

Following the Christmas period, a questionnaire survey was also undertaken in February 1997 to address specifically the project's key objectives in two other Australian States. The survey was designed to gather data for a broad picture on the research questions and to 'test out' some of the more interesting findings from the earlier phases. The network of HIA liaison officers and contacts within the respective TAFE systems were used to derive samples of equivalent populations in New South Wales (NSW) and Western Australia (WA).

The questionnaires were piloted in Victoria with six respondents, then distributed within each State with follow-up two weeks later. Respondents returned them directly by franked mail to the researchers at the University of South Australia. Copies of each of the three questionnaires are presented in appendix C. The response rates were as follows:

	Sent	Returned	Useable
• Apprentices	298	82 (28%)	76 (26%)
• Workplace host employers	244	74 (30%)	73 (30%)
• TAFE teachers	284	104 (37%)	103 (36%)

Working with the data

The word-processed and verified transcripts from the SA individual and group interviews were coded and analysed, using NUD.ist software, according to thematic categories that emerged from the text. Data from the returned questionnaires were coded and analysed using SPSS software.

The researchers reflected on the transcripts of the individual and group interviews and allowed themes to emerge from the text. Links with literature findings were made wherever possible. The initial process began with the apprentices' learning as the central focus, then transcripts of teachers and host employers were read to build the story progressively. The story itself was shaped by the original research questions for the study and developed out of the narratives of training and learning experiences furnished by the apprentices, host employers and teachers. It was complemented by the quantitative data from the interstate questionnaires.

Once the story had been developed from the participants' personal narratives and questionnaire opinions, the researchers then interpreted the resulting picture in the light of theory, drawing implications from the findings and reaching conclusions with reference to the original research objectives.

Framing the project

The arenas

This study focusses on two main learning environments—the off-job site and the on-job site. There is a third, which is off job but still within employer jurisdiction in, for example, a training room at the HIA central office. However, this component is a relatively minor component of the apprentices' life in terms of time in the first four years, and therefore is not analysed within this report.

In this study, the off-job learning environment is the TAFE institute site. The normal pattern is for the apprentice to spend eight weeks off the job in TAFE in each of the first and second years and six weeks in the third year, making a total of 22 weeks at TAFE over the 48-month period. No training at TAFE takes place in the fourth year.

The on-job learning environment is the building site. It is a small business environment, often with only two to four people working there. Typically, the apprentice is working on a one-to-one basis with a designated host employer.

The participants

In this study, apprentices were those indentured with the HIA under a 48-month contract. They are taken in on a rolling basis, when work can be guaranteed for them. While the HIA remains the employer, each apprentice is sub-contracted to a builder, carpenter or sub-contractor. They stay with that person for as long as practical, sometimes for the entire period but often rotated around different 'host-employers'.

In this report, the term 'apprentices' is used to reflect their legal status in the workplace and to avoid confusion. Other descriptions that could have been used are 'students' (as TAFE would most commonly use, but not the workplace), 'trainees' (though this term has a specific political meaning in the current Australian context) and 'learners' (an appropriate term, though thought to be overly generic for the specific person participating in this particular study and, in the context of a learning community, all participants are, or should be, learners).

The TAFE teachers were those employed by their respective TAFE systems and who were the educational providers of the off-job training undertaken by the HIA apprentices. In this report, they are simply referred to most often as 'teachers'.

How to describe the people in the workplace was a more difficult decision, as they are not so homogeneous as the apprentices or teachers. They are workers in the housing industry who have agreed to take on an apprentice from the HIA as employer. In this report, they are referred to as 'host employers' as a generic title and for consistency. Other terms that could have been used are 'sub-contractors', 'tradespeople', 'workplace mentors' or 'workplace trainers', though none of these terms was strictly accurate in the context of this study.

The interview samples (SA)

Apprentices

The sample of apprentices contained 31 males and one female.

By far the most common pathway into an apprenticeship (for 28% of the respondents) was directly out of school, with the le[illegible]ner having completed either Year 11 or Year 12 studies. Some o[illegible]er job associated with the building industry (for 19%), or the completion of a pre-vocational course at TAFE (for 19%), or a job unrelated to the building industry (for 17%) were the only other common pathways.

The other apprentices had a varied route with several attempts at different trade courses (for example, engineering) before a decision was made to work in the housing industry. In these cases, they brought with them a varied background, with experiences of working in a number of jobs, as well as experiences of studying previously at TAFE and, in one case, at university.

The apprentices were asked how many host employers they had worked with during their training. The breakdown, revealing quite a high degree of rotation, is presented in table 1. It shows that 13 (42%) had worked during their training with four or more host employers, three in fact with more than ten host employers. Thirty-six per cent had worked with only one or two host employers.

Table 1: Number of host employers with whom apprentices had worked during their training (SA)

Number of host employers	Number of apprentices	Percentage of apprentices
1	5	16
2	6	19
3	7	23
4 or 5	4	13
6 to 10	6	19
More than 10	3	10
Missing	1	–
Total	**32**	**100**

Five of the apprentices indicated that they had worked with their father, with one of the five also having worked with an uncle.

Twelve stated they had done a prevocational course prior to their apprenticeship.

The sample of apprentices showed a spread by length of service with the HIA (SA). Five (16%) had worked for less than one year, while 11 (34%) had worked for between three and four years (table 2). Most were attending TAFE, at different stages of their off-job studies, while seven indicated that they had already completed the TAFE component of their apprenticeship.

Table 2: Number of years as an apprentice (SA)

Years as an apprentice	Number of apprentices	Percentage of apprentices
Less than 1 year	5	16
1-2 years	8	25
2-3 years	7	22
3-4 years	11	34
Now qualified	1	3
Total	**32**	**100**

Host employers

All 21 host employers in the SA sample were male. They reported a long experience in the building industry, with the average time being 20.4 years over a range from 6.5 years to 35 years.

All had completed a trade qualification. Their trade areas included carpentry, joinery, form work, first and second fix. One quarter of respondents held a builders' licence. Two host employers reported they held, or were in the process of completing, post-trade qualifications or courses conducted by a private provider such as the Housing Industry Association (HIA). A number of comments underlined the value placed on work experience as a substitute for formal qualifications. This comment from a host employer who had been in the industry for 16 years reflected this sentiment:

> *Trade qualified through my apprenticeship and that is as far as it went. Everything else I have done through the trade, through the experience that I have picked up. Just work experience as I go, every corner of the trade I have covered by having enough of one area and moving onto the next, and learning more and more just by the people that I have worked with. Basically self-taught. No extra schooling.*

The majority of host employers were currently working with one apprentice. Four host employers indicated they regularly worked with two apprentices. There were occasions when a host employer might be asked to take an additional apprentice if a host employer did not have any work at that time.

As a group the host employers had not had extensive experience in training apprentices. One host employer indicated he had worked with ten apprentices in the past, another with six apprentices. One quarter of host employers reported that their current apprentice was the first one they had worked with in a long-term manner.

TAFE teachers

All six TAFE teachers in the SA sample were male. They were trade qualified and had spent a considerable amount of time in the building industry prior to becoming a teacher. They had also been employed by TAFE for a long time.

The questionnaire survey samples (NSW and WA)

Apprentices

In the mail survey, 76 apprentices returned useable questionnaires (a 26% return rate), 36 from NSW and 22 from WA (the remainder did not specify State). All were males. Collectively they form a group relatively well advanced through their apprenticeships and whose views therefore

might be expected to be underpinned by informed experience. Forty-four per cent were in their final year (SA 34%) and another eight per cent had just completed their apprenticeship. Their stage through their apprenticeships is as shown in table 3.

Table 3: Number of years as an apprentice (NSW/WA)

Years as an apprentice	Number of apprentices	Percentage of apprentices
Less than 1 year	2	3
1-2 years	18	24
2-3 years	16	21
3-4 years	33	44
Now qualified	6	8
Missing	1	–
Total	**76**	**100**

These NSW and WA apprentices had experienced less numbers of host employers during their training than their SA counterparts. Thirty-four per cent (SA 42%) said that they had worked for four or more host employers, while 53 per cent (SA 35%) had worked for only one or two host employers (table 4).

Table 4: Number of host employers with whom apprentices had worked during their training (NSW/WA)

Number of host employers	Number of apprentices	Percentage of apprentices
1	25	35
2	13	18
3	9	13
4	11	15
5	5	7
6 or more	9	12
Missing	4	–
Total	**76**	**100**

Host employers

Useable questionnaires were returned from 73 host employers, 60 per cent (n = 44) in NSW and 40 per cent (n = 29) in WA. All were males and 87 per cent (n = 62) were self-employed. They were an experienced group, particularly in terms of numbers of years working in the building industry but also, to a lesser degree, in numbers of years training apprentices (table 5). Ninety-three per cent had worked in the industry for more than ten years, with 61 per cent having more than 20 years' building experience. Fifty-five per cent reported that they had been training apprentices for over five years.

Table 5: Number of years host employers had worked in the industry and trained apprentices (NSW/WA)

Number of years	Working in the building industry		Training apprentices	
	n	%	n	%
0-5	1	1	31	44
6-10	4	6	19	27
11-15	11	15	10	14
16-20	12	17	5	7
More than 20			5	7
21-25	21	30		
26-30	9	13		
More than 30	13	18		
Missing	2	–	3	–
Total	**73**	**100**	**73**	**99**

In 1996, 82 per cent were working with at least one apprentice (90% in 1995 and 82% in 1994), and therefore had recent experience with the themes of this study. Just over half the sample (51%) were currently responsible for only one apprentice, and another 17 per cent for two apprentices (table 6).

Table 6: Number of apprentices with whom host employers were working (NSW/WA)

Number of apprentices	1996		1995		1994	
	n	%	n	%	n	%
0	13	18	7	10	10	18
1	36	51	28	41	21	38
2	12	17	18	26	11	20
3	5	7	6	9	7	13
4	1	1	2	3	1	2
5 or more	4	6	8	12	5	9
Missing	2	–	4	–	18	–
Total	**73**	**100**	**73**	**101**	**73**	**100**

TAFE teachers

The large majority of teacher respondents (97%) were male. This group had a very long experience within the building industry, with over three quarters having more than 20 years (and 44% having over 30 years) of experience (table 7).

Table 7: Years of experience in the building industry (NSW/WA TAFE teachers)

Number of years	Number of teachers	Percentage of teachers
0-5 years	2	2
6-10 years	1	1
11-15 years	5	5
16-20 years	14	14
21-25 years	16	16
26-30 years	18	18
30 + years	44	44
Missing	3	–
Total	**103**	**100**

In addition to this long experience in industry, the teachers also reported extensive periods in the role of trainer/teacher. One half of respondents reported they had been teaching or training for more than 15 years (table 8).

Table 8: Number of years as a teacher/trainer (NSW/WA TAFE teachers)

Number of years as a teacher/trainer	Number of teachers	Percentage of teachers
0-5 years	9	9
6-10 years	14	14
11-15 years	27	27
16-20 years	25	25
21 + years	25	25
Missing	3	–
Total	**103**	**100**

The last three chapters have focussed on the context, literature, research design and participants in this study. The scene is now set for analysis and interpretation. The next section turns to the learning environments that are constructed by (a) the host employers on the on-job site (chapter 5), and (b) the teachers in the off-job setting within the TAFE institute (chapter 6).

5 On-the-job learning environment constructed by the host employers

This chapter examines the on-site learning environment that the host employers construct when they take on apprentices as workers and learners. This environment is comprised of the host employers' training intentions and actions directly related to the job, as well as what they believe and say about TAFE as the off-job provider. Both of these components in the on-site environment may be expected to be significant influences on the learning of apprentices in their employ and care.

The chapter is therefore divided into two main parts. The first explores the host employers' training ideals, agenda, strategies and monitoring, and then summarises their views on the contribution of workplace training to apprentices' learning. The second focusses on the notion of complementarity, examining the host employers' beliefs on how their on-site training fits with off-site training, and on what they consider TAFE contributes to their apprentices' learning.

Host employers' training ideals

The host employers' training ideals and how they perceived the purposes of on-site training were expressed in a number of different ways. The following analysis singles out five of the most common.

Bringing apprentices into the trade

Host employers concerned to keep their projects on schedule see themselves as bringing apprentices into the actual processes of the trade. They speak of helping apprentices to get the 'feel' of the trade. 'I think a lot of the purpose is for them to feel that they can feel exactly what the tradesman's job is, the responsibility', as one said, or, 'to give the apprentice a good insight into what the trade is all about'. Another said that on-the-job apprentices develop an understanding of the 'real methods of approach', 'like how to get that beam up there safely without hurting yourself'.

Grounding knowing in the real world

A major insight from the host employers is that on-the-job learning is different from learning in TAFE because the learning is grounded in the real world of building practice. One host employer pointed out,

> *I think that 98 per cent of their learning is done on site. You couldn't train them in a classroom or even in a workshop environment to do what we do on site. It just wouldn't work, it would just be impossible.*

Another said, 'the purpose of on the job, you have got to get into the real world and you don't learn until you have to do it in actual practice'. The sense of the importance of grounded knowing drew this simile: 'if you haven't got the practical, it is pointless; it is like learning to make a cake—until you bake it, you don't really know how to do it'.

Grounded knowledge is often linked to common notions of 'being practical' which was emphasised by several of the host employers who spoke about 'understanding by seeing':

> *. . . people tend to learn more by seeing something put together than what they will sitting in the classroom and seeing it drawn on a blackboard or something like that. A lot of the people you will probably find who are out on sites didn't go a long way in high school, so there is not much to sitting in classrooms and listening to teachers, and I think they will find it easier to learn if you show them on site how to do things.*

Making transparent the practical implications of theory

Another common view related to how being on site helps the apprentice see the practical implications of theoretical ideas used in building:

> *Instead of the theory which they learn at TAFE, they actually see the practical implication of it on the job. Not all the things that they learn by the book are applicable on the job.*

Host employers distinguished between 'grounded or practical knowledge' and 'book knowledge'. Apprentices realise, said one, that

> *they can't work exactly by the book all the time . . . I think it's [on-site learning] a lot more necessary than the school part of it myself. I think the school part of it you can probably almost get out of a book. The on-site training is essential, I think.*

On-site training was claimed to be the touchstone of building theory. As one host employer claimed:

> *. . . the purpose of it is for them to see the practical application of what they have been taught in their TAFE courses. Also, to learn that what you are taught in TAFE doesn't always work—not that it is wrong, but*

sometimes you just can't do it that way, and the idea is to learn what to do when things aren't as they are drawn in books, basically.

Providing context for basic skills

Accompanying the benefit of grounded knowledge is what the host employers refer to as basic skills, 'just basic hand skills, the theory that you wouldn't get in TAFE . . . Most of that I have just thrown out the door, and everything is totally different on site'. Basic skills are not just skills with tools; they are skills which are shaped by their being applicable on site during the building process, 'teaching them right from basics, they have to start right from the basics and go with the flow of the gang'.

Instilling commitment

These contextualised skills are embedded in a commitment by the host employers to quality, discipline and motivation—commitment to being a competent tradesperson:

Basically, to train them to be good carpenters, to be good tradespeople—competent.

They also involve commitment to accepting the discipline of the trade:

The discipline of being there for a start. Just to turn up at the right time, and doing something that they're told to do, and seeing how other tradesmen work.

And finally, there is commitment to getting the job completed:

On the job, probably the first and most important thing is motivation. It is hard to teach that in at TAFE or just in general, but out on-site working in the building industry, it is the main thing to get the job done.

These ideals of what on-the-job training can and ought to achieve are linked to what host employers see themselves doing in their part-time role as apprentice trainers.

Host employers' training agenda

In general terms, the host employers most commonly saw their training task as reproducing themselves in the apprentices. One host employer spoke of being a parent-type of person and it is clear that all the dimensions of the trade 'as lived' are to be offered:

My role, first and foremost, is to give him his direction in the trade, to give him the right way to do things, to keep people happy, the right attitude to do the work properly, to work with customers, work with other workers.

Another said simply that his role was

> *to teach them basically everything I know. Not only the workmanship, a little bit of the business, public relations—talk to the people—the clients, the owners; to be here and supervise and, not only supervise also physically show him what to do first and then he does it . . .*
>
> *. . . that is my job I see, to train him in everything of the building trade, not only how to hold a paint brush and how to hold a hammer, but everything—safety, you name it, punctuality, neatness.*

This can often involve teaching them the 'lurks and perks' of the trade:

> *Teaching them the lurks and perks of the trade I suppose. Picking up on mistakes that they make, and generally keeping an eye on them. They learn things off me, and other sub-contractors they work with. They probably learn more at on-site training than they do theoretical at trade school.*

These universal goals are understood differently. One host employer, with several projects on the go, spoke of his 'building system' as offering an appropriate learning environment for apprentices—'my direct role is to oversight that system as well as working in with that system and to make sure that nobody falls behind'. Others thought that apprentices received their training by being with host employers and sharing in their knowledge:

> *It is basically to share your knowledge, your experience of different situations, and for them to get an overview of all the little problems that come along and how to get around them, in a manner that is going to work, simply to know that it is going [to] work.*

The host employers had a range of views about how such training could maintain high standards in the apprentices. They liked the fact that on the job, host employers can insist on good work—that on-the-job training will 'teach them how to do the job properly'. It will also 'teach the boy the correct way of doing it. Show him the way that I have probably been shown myself and try and do it the correct way', and 'teach them the right way of what I think is the right way to do things'. Other host employers added that training was to help apprentices 'to work in a proper tradesman-like manner, to do things structurally and safely, and to work in an efficient manner'. They said that they wanted to 'teach them every aspect of the job and get them to do it efficiently while I can keep an eye on them' and 'to teach my theory and my hand skills'.

The question was then how host employers went about implementing their training ideals and plans.

Host employers' training strategies

The host employers had a variety of strategies through which they offered learning opportunities to their apprentices.

Being close

One clearly noticeable strategy is that of 'being close' and 'staying with the apprentices' while they are on site:

> *I stay there with him and teach him whatever we have got to do. Every bit of timber we put on the job, I want him to learn what it is for, I explain from the beginning and that is all there is to it—that is the only way you can learn.*

Built on to the closeness between host employer and apprentice was a range of approaches they use to train. Some host employers, in doing the tasks of the trade and with their apprentice close by, open up these activities and encourage the apprentices to try their hand:

> *I just show him what I want, then let him have a go at it. If he is not really up to it, I persevere a couple of times and then I leave it until next time, and just see how much he picks up day by day, week by week and when I feel that he is starting to cling on to a few things, I will go through it again with him. Basically it is just perseverance.*

Some host employers have a strong focus on the quality of their work. They invite the apprentice to 'get it right':

> *I do it myself, show him, then I ask him to do it with me, and then after that I will ask him, 'Can you do it please?' while I look closely while he does it, and then if he makes a little mistake, I will show him again, because I can't expect him to remember everything straight off.*

Others build on the watchfulness of the attendant apprentice, adding explanation where appropriate and when there is time free:

> *So we'll go on a job that he hasn't done before and sometimes he'll just stand behind me and just watch, and sometimes I'll explain to him as we're going along and he'll do it with me . . . Sometimes the lads ask. Some say, 'Can you show me?' and I'll say, 'Another time when we've got a bit more time I'll show you how to do it'.*

The host employers are conscious that one of their major contributions is their time; one responded, 'a lot, let's face it, when I did my apprenticeship I never had a boss that would put up as much time as I have done with him from the beginning'.

Staying with the apprentice for one building meant closely supporting him and trying 'to instil a bit of confidence', so that the apprentice would not become dispirited at so much to learn. Care for the apprentice was displayed overall when the host employer took the running and involved

the apprentice in an almost 'exchange-the-baton' exercise with the lead and work alternating between them:

> *We work together as much as possible . . . I might do one purlin and then go through it with him, and once we have got one sorted out, then he can go ahead and cut the rest of them. Either that, or I work it out, and then go ahead and cut them and he nails them on.*

Show and let try

Linked to the companionship are a number of strategies, most of which spring from the building process as it is pursued. The first is the classic 'show and let try'. Some create space in the building process to show their apprentice a procedure and then make further space for him or her to have a go at doing it:

> *First off, I will probably get him to watch me do it, the way I do it and why I do it that way, and then more or less I will leave him to do it and just watch him.*
>
> *. . . some things it is easier to do in front of them, physically do it in front of them, and at other times it is easier just to explain it to them, let them have a go and then go back and check that they have done it right.*

Joined to this is the importance of perseverance:

> *Show them once and if they don't pick it up, do it again. Basically, you have just got to. That is pretty hard because they have got to stand around a lot watching you, so it is not that easy for them . . . It helps if the trainees you have got are keen to work.*

One host employer gave this graphic description of hanging doors in new work on a house with his apprentice and providing training time within the project. He had mentioned that he was working on an hourly paid contract rather than a competitive tender and could afford a little time for the apprentice:

> *I went through the procedures and he watched me do it; pointed out a couple of the particular areas where you have got to be a little bit careful as to getting the hinges sitting nice and flat and having the door backed off a little bit so that it won't bind and that sort of thing, and then I sort of stood around and said, 'Right, let's go for it, this one's yours', so he had a bit of a look at it . . . from memory I don't think he had too many queries and I hung the door and it fitted reasonably well, a few minor adjustments and then I said, 'Watch me again'. I hung another one. Then it was his turn, and from then on, he is pretty capable now of hanging a door. I have gone through most of the things we do, we do it like that.*

The host employer needs to be able to adjust to various responses from the apprentice which can range from instant comprehension and enthusiasm to blank incomprehension.

I would explain it to them at least a good couple of times and then, if they still had problems, I would tell them to ask and, as long as they don't come back with too many silly questions, I will just show them the best way I know how and that is about it really.

It is evident that it is not just the efficiencies of time and carpentry practice that save money; it is an economy of body movement to be learned that can protect people's health:

When you are young and strong you can rip them out of the ground, but when you are old and buggered like me, you need a bit of assistance, and again, if your back is not good, you need to teach them the right way and they can have the choice. It is just that you talk all the time. Nothing really set, or hard and fast.

In some cases, the host employer has to break down a procedure step by step into its component parts and show a little at different times:

Yes, it's step by step. It's every step, but it's not in one hit like, well, I'm going to sit down for two hours and say, 'Right, this is how you do the whole hip'. There's just too much to take in.

Instruct

The third approach to training is that of instruction. The host employer stops building for a period of time and becomes an instructor. This, too, has variations. Some instruct and then leave the apprentice to find their way—'I instruct him on how to do it. Generally I show them how to do it and then they do it themselves, and I just continue to keep an eye on them'. Others are more directive in overseeing and shaping the whole process:

When I explain something, I want him to remember what I have explained to him. He has to remember everything that I have explained to him and so on the next job he knows exactly what to do. I started off from the beginning, he knows exactly what to do now. I can go home and he will know exactly what to do because I started off.

I teach him new skills—handling of the tools is probably the most important that I could think of, because if you can't handle power tools and handle tools and that sort of thing, then it is very hard. He has got to have the feel for it. It would be hard to teach somebody who hasn't got the feel for tools.

Set tasks and monitor performance

The fourth approach is more a guarded problem-solving strategy where the host employer gives the apprentice a relatively easy task at first and then supervises and is available to explain again if required in order to build instruction around the way the task is performed. One host

employer explained this type of approach: 'I will give him a simple task to do, then just check up on him, see he is doing it right, then I will let him go; if not, I will just explain it again'.

An interesting variation on this is the 'start—take-over—finish' strategy:

> *He's got to watch how I do it, then I'll give him parts of it to do. I might do part of it and then say, 'Finish it'. Another time I might say, 'Start it,' and then I finish it; and then it gets to the stage where I give him the whole job to do.*

Another approach used by other host employers is 'throw in at the deep end':

> *Throw him in at the deep end virtually: 'Right, this part of the job is yours; you make that wall frame up, set that wall frame out with the windows and door frame, see how you go. If you have any problems, ask; if you don't, go ahead; when you have finished, let me know and we will see how you have gone'.*

Work with the apprentice's learning autonomy

The fifth strategy is to work with the apprentice's own learning energy and interest. One host employer talked in terms of allowing 'a free rein':

I believe in giving them a free rein, giving them a job and saying, 'Right, cut the roof out', and seeing how they go. If they don't quite understand it well, explain it to them more and do it again.

Another host employer uses a strategy of an ongoing working dialogue with apprentices and encourages them to think for themselves before coming to him:

> *I say to the guys, 'If you have got no doubt, you think you are right, do it, but don't come to me with no answer to the question. Think about it yourself, then come to me and say, "Look, I can't do this but I can do it this way", and more often than not you are right'. So it is very self-motivating, self-starting again, that is to my benefit too, but it teaches them.*

In a similar vein another spoke about respecting apprentices' choices on methods and approaches to various building processes:

> *My way might be easy for me but might be so hard for you because you might be left handed and I'm right handed . . . each person is an individual, so you can only show them how the things should be done, he's then got to make up his mind how to do it to come up with the same result.*

Yet another host employer was anxious to develop apprentices' active questioning as a useful self-training strategy:

> *My method is that I get them to do it themselves and if they are not sure of anything, I don't care how many times they ask, but don't sort of go and mess it up, just keep asking, and the more they ask the more they will learn.*

With dialogue it is hoped that listening will grow: 'It's up to him to listen to what I'm saying to carry out the task'.

This array of training strategies raises the question of how host employers assess apprentices' learning within their daily work activities.

Monitoring apprentice learning

One of the vexed issues concerning forms of training other than those pursued in formal training rooms is how learning promoted in other ways such as in the workplace can be assessed. The study brought out several dimensions to the host employers' monitoring of workplace learning.

As has been pointed out above, host employers find the task of appraising the apprentices' performance as a tradesperson-in-the-making (in terms of building skills and knowledge gained) tied up with three additional and related concerns which exert an influence on their assessment of the apprentice. Firstly, the apprentice should make a contribution worth what the host employer is paying. Secondly, the apprentice must not hold up the works by being in the way or getting injured. And thirdly, the apprentice must not perform so badly in the tasks allocated to them that the host employer's reputation as a trainer and contractor might be harmed.

It is thinkable, for example, that a host employer might indicate that an apprentice was excellent because they had carried out tasks quickly and effectively and had thus contributed to the overall productivity of the enterprise. It is again thinkable that the tasks the apprentice had performed well may have required little developed knowledge or skills. Thus, to be a good contributor to productivity may have been to have performed well as a labourer but not strictly as a trainee host employer.

Monitoring one's own performance

A significant element in the host employers' reporting on their monitoring of apprentice learning is their reflection on their own stance towards the apprentice. The host employers mention being always conscious of the apprentice 'doing something else and looking over my shoulder'. They speak of performance problems in work tasks more in terms of apprentice difficulties than apprentice weaknesses; for example, a typical comment is: 'If they haven't done it, you ask a few questions why and, if they have had difficulties, you question what they were having trouble with and then work it out from there'.

They also recognise and acknowledge their own responsibility in closely monitoring their charges:

> *I think you feel as if you have got a bit of responsibility, it is not proper to leave a person not fully trained on a site on their own. You have got to be there to teach him . . . if he doesn't, it all comes back on me and not him because you are the one teaching him.*

Some host employers realise that taking on an apprentice involves being challenged as a boss and trainer and, in the monitoring of training, the behaviour of apprentices can signal problems in the host employer's management. Apart from this realisation, two other major emphases emerged from the interviews. One was a focus on the apprentice as a person and the other on their performance.

Focus on the person

In the focus on the person, the host employer monitors attitude, motivation and safety, as well as integration into the working team. At this level, monitoring seems to be about the extent to which the apprentice is 'fitting in', and the extent to which the host employer is taking the trouble to integrate the apprentice into both the team and the work.

For one host employer, monitoring is about 'keeping the apprentice moving'. For others, it is about 'keeping with him' so that the work is monitored, as it were, while it is being performed. One host employer expressed it as 'basically going back and forth and having a look at what he was doing', while a second elaborated further:

> *If you have left him on his own you can't monitor his performance. The proof is in the pudding if the job at the end of the day is up to standard, providing he hasn't hung only one door in a day, there would be no problem.*

Another host employer articulated his concern not only with his productivity but also the personal safety of his apprentice: 'I don't like him to be using power tools and stuff like that while I am not there'.

Focus on performance

The alternative approach, which was the more common, was for the host employer to focus not so much on the apprentice as a person as on the apprentice's performance. Monitoring at this level meant checking the work the apprentice had been doing—'You are walking around the job all the time, you just take note as you are going past, check this, or this is not quite right'. An alternative is getting one of the contractors to check when the apprentice is working away from their supervisor—'The host employer would drop in at least once or twice a day to make sure that nothing was going amiss and that everything was okay'.

One host employer monitored his apprentice's performance by comparing the time he himself took to carry out a building procedure and comparing that with the time the apprentice was taking:

I just basically say to myself what it would take me, times that by half, that is what it should take him. If it takes him any longer, then I will start worrying, start wondering is he really into his job, just question him. I will say, 'Why are you taking so long? Okay, pick up your pace'.

Some of the host employers were concerned to stress how closely they monitored their apprentices' work, keeping a running check, praising good work and correcting work not done well:

I check every half an hour or an hour . . . When the job is completed . . . we both go around and have a look and, if it is all right, I praise him and tell him it was a good job, and it is never very wrong, maybe just a couple of bits and pieces, not 100 per cent right. I explain to him how it should be done and ask him to correct it.

I probably check on him every half hour. Just go out and say, 'How's it going?' and see how much he's done and is it working, yes, it's working fine. Like I do monitor him fairly well in that situation but I haven't got the time to sit there and watch him and make sure he's doing the right thing, but you can see he's doing the right thing with what he's achieved.

One host employer rather revealingly acknowledged that he tends to comment only if there is a fault and not to praise work well done:

While I am walking around the house, I might do a door in the house where he has done the architrave and I will have a look at it. If it looks good, I don't usually say anything. If there is something a little bit wrong, I will mention it to him and correct him where he has gone wrong and that type of thing.

It is clear that the host employers employ a rich array of collaborative working/training strategies with their apprentices on the job. A question of interest here is what the host employers considered to be the contribution of the on-site environment to the overall learning of their apprentices.

Host employers' views on the contribution of the workplace

The host employers felt that the on-site training received by the apprentices contributed to their learning both on site and at TAFE. Some host employers believed that apprentices were able to 'breeze through' sections of their studies because of this headstart, in that they had been exposed to the language and the component parts of tasks, and had seen as well as done:

I think when he gets to the modules when it comes to housing, framework and roofing and things like that, [my apprentice] will just breeze through it because he knows it all, I have taught him early . . . so I think by the time he gets to school, he will understand what the teacher is talking about a lot more, because he will understand the terminology and stuff like that.

Well, the modules of some of the things he has done, he has done fairly easy because he has already done them on site—some of the roofing parts and things like that. So obviously being on site and having done and seen certain things, he is able to get through that section of the course quite easily.

Others reinforced the importance of the coincidence of learning and working, one drawing a contrast with a recent experience he himself had had:

That is one of the problems I had when I went for the builder's licensing course. I was laying bricks and not building them, whereas I was learning all these building skills, but I couldn't put them into practice, although I did see them on the sites where I worked. But [my apprentice] is able to learn them and do them at the same time.

In summary, the host employers claimed that it was on site that apprentices learnt:

- to improvise
- to solve problems
- a general and broader range of experience
- when 'to go screaming to the supervisor' when things don't work
- practical hands-on work
- an 'opening up to the big world'

From the host employers' perspective, these were components of learning that were highly significant not only for the apprentices' overall learning as a worker on site but also for their specific learning as a student off site.

Host employers' views of on-site/off-site complementarity

The notion of complementarity through the eyes of the host employers was usually somewhat problematic. It was most often interpreted in terms of methods and techniques. They perceived the two environments dealing with different methods, brought about by the pressures of the 'real world' of work. On-site work meant that these methods in their view were more up-to-date, more job specific though often less correct than those taught off job.

Many trainers, in fact, saw the two sites as quite separate and even contradictory, one referring to the 'clash' between them:

I reckon it would probably be not quite on the same track because obviously there is going to be a wide variety of topics with TAFE that they have to cover . . . 90 per cent of my work is mainly first fixing which

is wall and roof . . . but I would say that the way that we might manufacture wall frames and roofs would be slightly different to what they are being taught at school.

They probably don't fit together. On site is probably completely different to what they do at TAFE. In TAFE you are taught by instructors/trainers that I think generally are more or less old fashioned, like to do things I guess the proper way, but in real life it is going to take you twice as long. These days you have got to find a faster pace and still come up with the quality, but like I said, on-site experience is completely different to TAFE.

It clashes, because [my apprentice] will come to me and say, 'I learnt this'. And I say, 'so how did you do that?'. 'Oh, we did it like that.' 'Boy, that's hard, and how did you do this?' 'Oh, we did it this way', and it will clash with what I do.

Some commented on the lack of communication between the two environments which resulted, *inter alia*, in their difficulty in responding to questions on the extent of complementarity. One host employer, for instance, expressed his frustration in the following manner: 'I can't really answer that because I don't have any contact with any of them . . . I can't contact them at all, you never get anything from them'.

A small number of host employers actively encouraged their apprentice to integrate their TAFE and workplace experiences:

I would expect that what he learnt at TAFE by going to TAFE with what he picks up on site to be enough. I think he is currently now doing roofing and from what he picks up from there, I will be interested to see what he can apply at work. That will be a gauge as to whether or not he understands it.

Another approach was taken by several host employers who encouraged their apprentices not just to implement ideas and approaches from TAFE but to pass these ideas and approaches on to the host employers. One host employer acknowledged:

I want him to explain to me how they teach them at school, because I might learn something as well—the latest methods, the newer methods, building regulations and building codes. They are continually changing, they are bringing the whole country, building regulations, making them uniform, so I feel I can learn something from his learning as well.

The more common view, however, was simply to tolerate the TAFE training of apprentices with the required absences on block release and to do very little apart from that.

It is more by chance than deliberate because a lot of the time I would prefer him in a way to forget outside forces that he has been learning, because I like things done a certain way.

This brief summary on how host employers view the relationship of workplace training to TAFE training now leads to a further consideration of how host employers judge the contribution of TAFE to the learning of their apprentices.

Host employers' views on the contribution of TAFE

The host employers views on the complementarity of the two environments are undoubtedly influenced by what they had experienced and what they thought of TAFE. This part of the chapter examines these impressions of the off-job environment. They displayed a range of opinions on the contribution of TAFE. Some highlighted useful elements, others underscored a range of points of conflict, while a number were quite critical about TAFE's contribution to the learning of their apprentices.

Useful elements

For some, the value of TAFE was in 'the bookwork'—mathematics and related skills, knowledge of building codes and scientific information about metallurgy, weight-bearing trusses and the like. As two respondents put it:

> *It is a must, because I can't teach him bookwork on the job, so he definitely needs a lecturer to go through it in a school situation, yes, it has to be. You get to work and I can teach him how, they will teach him why. I can teach him how and why, but the school can give him more on the theory side of things than I can because I would need to be a computer to actually do it properly for him.*

> *Like I said before, TAFE really gives a background knowledge to the trade that they are in. They do try to teach them everything about the trade, like for instance, this is what they consider first-fix carpentry. At trade school, they would be given a bit of background knowledge to cabinet-making as well, which is part of carpentry but really not what we do out here. So I guess that is probably a good thing, because if they aren't happy here, it does give them some idea that carpentry is not confined to what we do here, there are other aspects to it too, so they could seek that out if they weren't happy doing this.*

For others, TAFE training permitted a purer, more professional approach away from the pressures of the worksite and the temptation to take short cuts: 'I would say it [TAFE training] would be good, I can't imagine them telling them to take any short cuts'. One host employer had been impressed, not so much by the book knowledge of the apprentice but the quality of the things he had made. He could not, however, contain his surprise and expressed his opinion that this was more an exception than the rule, highlighting the differences between the two environments:

What he made there at TAFE I was very impressed with. I asked him if he did make it because I couldn't believe it. I have seen lads going to TAFE, they do all the schooling and when they come out they don't know a thing—it is so different out here.

Others praised the 'return to basics' of the TAFE system and the offering of transportable skills which are not locked into the practices of one host employer. One spoke of getting the right names for things as a useful contribution from TAFE:

I think it's good that they get different ideas from different people, and that they're shown the right way of doing it, because we all develop bad habits, and we all develop short-cuts that we probably shouldn't be taking, but we do anyway because we've been doing them for x number of years. I think it's good that they learn the proper way. I also think it's good that, even if they forget it, they've learnt the correct terms, so that if they get onto a job that's a lot more complicated than what we generally do these days, they've got something to refer to and it's not all Dutch to them or all new terms.

TAFE's contribution to a number of other host employers was in inducting apprentices into the 'rules of the game'. The building by-laws, trigonometry, various built shapes and their capacity to bear load, established building sequences, building permissions inspection and the like. One host employer drew an analogy with obtaining a driving licence:

It is like when you go for a licence. You go and get your licence, you learn while you are on it, you get your licence and you throw the rest of it away. You have got your licence, you do the job, you go driving, and we all drop off as you go further up the line . . .

TAFE attracted considerable praise from host employers who saw the off-job training as pushing aspects like safety which they might have overlooked under the pressure of the job:

He has at least learnt that he has to do certain things and be aware that a clean site is a safe site . . . He was picking up things and throwing them on to a heap out of the way out of the traffic, so he was making sure that people weren't going to twist ankles.

One host employer working on roofs noticed an increase in confidence in his apprentice who had been studying the theory of roofs at TAFE. There were a number of comments about how well various apprentices were doing at school but there was also a sense that the apprentice was actually studying matters quite different from their workplace activities, in particular, theory and a wider perspective on the trade:

It's two totally different things, you've got work and you've got TAFE, you've got theory and then you learn to do it.

I don't really know exactly what courses and that he is doing there, or what subjects . . . He comes up with pretty good results. I have spoken to a couple of the guys and they are happy with his work, so I presume it is an avenue to give him something different rather than the way we go into it.

Many, in fact, valued TAFE for giving apprentices a broader view of things they might do in the industry as well as the particular building work that they are doing at that time:

I have been to TAFE myself before I started, so I generally know what is involved and I think it is a good start, getting the experience and the different areas of what you can do in the building industry—it is not just one area.

Much positive comment about the contributions of TAFE came from the more person-centred host employers who could see the broadening contribution of TAFE to apprentices' knowledge, rather than merely enhancing their performance on the job. But there were also exceptions to this. For example, one host employer pointed out that boundaries between the various trades—plumber, bricklayer, painter, plasterer—were for ever being broken on the job but that TAFE training was still sticking to carpentry only:

The usefulness is very good, for the carpentry bit, but there is no training for anything else, which is not a problem, but it is something that I find difficult because when [my apprentice] comes out of his apprenticeship, he can be a builder rather than just a carpenter.

Points of conflict

The major criticism centred on the difference in approach between the general deeper knowledge of TAFE and the specific knowledge required on each particular site, what one host employer called 'the things they actually do':

Not very useful. Certain modules are useful . . . sharpening and safety and certain modules are pretty good. But when it comes to roofing and wall framing, I'd rate it really poorly. They have no idea of how to go about it and they should. From trade school they don't know anything about bricks because carpenters now build the whole house. So we have to know how to set our windows to bricks—that doesn't get taught at school. How to set the height of the windows again to bricks. How to calculate raking wall frames. They don't know how to do that and the list goes on. They do not learn enough about the things that they actually do.

There was some disquiet when it appeared that TAFE, instead of teaching 'the bookwork', was teaching the apprentices basic manual skills which could be picked up on site:

I'd like to see more of the technical side in the schooling, rather than them telling him how to put in a screw or bang in a nail. More the technical side of building, like the timber framing code. How to work out the timber for a certain thing. More than teaching them how to be a carpenter, teach them all the technical side of it. Things you probably can't learn out on site.

The contradiction here seemed not to be apparent to this host employer. For other host employers, one of the benefits of apprentices having basic skills before coming on site was that they were more useful and less likely to 'hold up the works' or get injured.

Many of the host employers spoke of the TAFE contribution in terms of the perceived level of satisfaction of their apprentice. It was of some concern to them when their apprentice seemed bored or frustrated with the time spent at TAFE:

Some days you can tell that he was bored out of his mind, other times he'll come home, like the last couple of days he's been coming home, he's been helping the class because he's done it before. So once again he's already done it before.

One of the tensions felt by host employers was the lack of 'fit' between the two worlds of TAFE and the worksite. The reason for such tension was expressed in different ways. Some felt the processes being taught at TAFE were out of date and no longer used:

Every trainee I've ever had tends to say that they're not up to date with what's going on in the real world. I know I used to have the same problem when I went to trade school when teachers weren't up to date with the real world of building, because I suppose it's a bit different in the classroom.

They seem to be old fashioned in a lot of ways. Like with the roofing, they use an old roofing square and don't teach a fast quick method that works a lot better that we use on site and they are not taught that. It is more from a mathematical point of view, they draw it on the paper and they use the square. You couldn't use it on site, it wouldn't be practical.

For others, the level of skill taught at TAFE was too basic and there appeared no provision for recognition of prior learning:

. . . the way they teach you how to do a roof at trade school is very, very basic and . . . it's very minimal work. You wouldn't be able to do most of the jobs that we do now, no way. In absolutely no way.

The lad that I had before, he was going to school and he was telling the teacher what to do, and that is when they found he was that much in front of everybody else.

Still others highlighted the tension as one of relevance:

> *Some of it is not relevant. I think it is necessary that they do some, they get a perspective of perhaps looking at the other trades that fit in with the staircases, some joinery and how things are put together, methods of joinery and use of other tools, but there is not a lot.*

One host employer's experience seemed to embody most of the views so far analysed:

> *I think it is very good, I think it is very in-depth. I think some of the aspects they learn are not relevant to the work on site, but then again this might be just a set sort of training program for all aspects of carpentry, so you have to learn one to learn the other. You might have to learn to make a door, or then again it might just be giving them some idea of what sorts of fields they can go into. The boys themselves go to school and come back and think, well, that was a waste of two weeks . . . you say, 'What you have done at school?' and they say, 'We made a door or we made a coffee table'. It is not relevant to what they are actually doing on site. But that is the practical side of it.*
>
> *The theory side of it . . . is very relevant. Most of it is to do with building codes and specifications so that is relevant. I don't really know a lot about the TAFE training course as to why it is set up the way it is, why it is not set up as frame and roofing carpenters, and then maybe second-fix carpenters and then maybe one for shop-fitting or cabinet making. I think there is one for cabinet-making . . . the machinery they use at TAFE—big saws, bench saws, planers—we don't use on site, so really that is another aspect of it that is irrelevant to the job they are actually learning on site.*

One of the themes emerging in discussions about the contribution of TAFE was the potential for conflict over the issues that have been highlighted here. In some instances, the TAFE influence, rather than being seen as a contribution, was seen more as a hindrance. Apart from the perceived out-of-date nature of some aspects of the content, the type of machinery used in the TAFE institute was a case in point:

> *I'm not real sure with [apprentice's name], but it tends to be that he learns a lot more on the job because he uses the actual machinery that he uses on the job, whereas at trade school, they give him a hammer and handsaw and say 'Do this', which he's going to be doing totally differently than what he would be doing on the job.*

Critical views

Some views on the off-job environment were harder line, where the offsetting values mentioned above by others are singularly absent. Here it is significant to note the strong task orientation of these host employers and their interest in the apprentice being able to fit in and contribute to

the worksite. Extreme views from host employers were borne out of frustration with the off-job environment. Their prime concerns centred on relevance to, and duplication with, current work on site:

> *. . . what he does there at the moment I don't think has anything to do with what we do here . . . At the moment I could basically say it [the TAFE environment] has probably done nothing.*

> *I have had closeness with [the TAFE institute] over the years—I have seen three other apprentices and I just found that what they are teaching isn't right. The industry has changed so much that . . . they need to chuck out all the old books which I had at school—they just crossed out a few things and changed it. It is wrong. I couldn't talk enough on that because it is, it is just backward . . .*

> *I wouldn't class the training during the actual apprenticeship as being essential. Especially once they have picked their field and that is what they are going to do, and in [my apprentice's] case, a carpenter as in first or second fix, so he is getting experience on site which is the best form of experience and I don't see the point in going back to TAFE to learn the same things. It just seems a little bit of a waste of time.*

Other comments underline a disparity between the approaches and knowledge of the host employers and those of the TAFE teachers. As far as these host employers are concerned, aspects of the TAFE teachers' knowledge and skill are not used on site:

> *. . . They don't learn how to actually use trigonometry. They have learnt some things in trigonometry but, the way they have showed me, some has been wrong and some has been about the long way of doing it and it's very, very simple trigonometry. Very simple. I believe that what the lecturers should do, or TAFE should do, is sit down with carpenters that use trigonometry every day and we'll teach them how to do it because the lecturers don't know how to do it. Some lecturers are from the old school and still use the old method, which was using a roofing square and stepping a roof out the old way using no calculators or any form of trigonometry. I believe that's gone. I believe it's not as accurate and I think that's the past. We have to go into the 1990s, into learning how to use trigonometry.*

Another host employer stressed a similar concern, highlighting the perceived gap between fast-moving industry practices and the more slowly adapting institutional curriculum:

> *The schooling I went through needs to be upgraded quite a bit because most of it is pre-historic and everyone needs to be upgraded to the industry as it is now. Most of what they are teaching in school . . . is pointless because they go into the job with something out of a book, and it is done a different way out here now. Basically I think their schooling needs to be upgraded to suit the industry today. The actual schooling*

needs to be reviewed every couple of years because there are so many new things coming through and so many old things being deleted. They really shouldn't be teaching them things they don't use anymore. It needs to be reviewed.

This completes the analysis of the host employers' views of the learning environment they construct for apprentices at the worksite and their opinions of the off-site learning environment. It is quite clear that, on the whole, host employers validate their own contribution to the apprentices' learning. It is also clear that many have misgivings—some serious—about the off-job learning environment for present day apprentices.

Before turning to the apprentices' perceptions of their two learning environments and how they have been experienced, the next chapter examines the flip side of the learning environment coin—the TAFE teachers' views of how they construct their environment and their opinions on the value of both environments to the learning of apprentices.

6 Off-the-job learning environment constructed by the TAFE teachers

This chapter portrays the off-job learning environment. It describes how TAFE teachers construct the off-job learning environment for the apprentices and analyses what they believe are the main contributions of that environment to the apprentices' learning. It then examines their opinions on how well their off-job learning environment complements what they perceive happens in the on-job learning environment.

TAFE teachers' views on the purposes of off-the-job training

The TAFE teachers saw off-job training as having, primarily, a dual purpose. On the one hand, it serves to complement what the apprentices do on site, while on the other, it is designed to provide what the industry does not offer. One perspective, therefore, derives from a collaborative model; the other from a deficit model. Both of these perspectives play a strong role in determining the construction of the off-job learning environment—what is offered, how it is provided, the setting in which it occurs and the extent of interaction with the outside context. Each of these dimensions of construction are discussed further in the next section.

The overall purpose of off-job training is therefore both complementary and supplementary. It complements by aiming to furnish the principles underpinning the apprentices' on-site practice, to provide in a relatively unpressured context consolidation of the apprentices' skills and theory through more formal instruction and more formal assessment. It allows further development of the problem-solving and paperwork skills of the vocation. It also supplements by providing learning opportunities that the teachers do not perceive to be occurring in the busy environment of on-site labour. The teachers are firmly convinced that their off-job learning environment broadens the apprentices because that which occurs in the workplace is often too specialised to permit sufficient all-round training.

It is in the context of their beliefs about the purpose of off-job training, then, that the TAFE teachers set out to build a learning environment in which apprentices can accomplish what the teachers believe is important for them as preparation for the vocation of carpentry.

TAFE teachers' descriptions of the off-job learning environment that they construct for their apprentices

The program is structured with modules through each of the years. Within the modular system, there is area of specialisation. For example there are three or four areas of roofing, each with a 40-hour component; at the end of the component, they are expected to be able to achieve each module's specified objectives. As much as possible within the 'confines of the college', the teachers attempt to provide the apprentices with meaningful exercises to work on. One recent example was the building of a transportable building which was then sold.

The physical environment was described as 'pretty rough', not one purposefully designed to teach students but a warehouse which they claim is often not perceived by apprentices as a workshop area. It has been 'chopped and changed and still doesn't blend to the training of apprentices in the right mode'. 'The actual environment we work in', said one teacher, 'is pretty horrendous at times . . . the actual bench areas are not good . . . we have to make the best of it'. However, the machine shop is highly lauded by this same teacher as 'probably the best in the southern hemisphere', with 'most of the up-to-date technology', and the library as 'fairly up-to-date, in fact . . . second to none as far as the trade goes'. The large canopy ('you can effectively build seven full-size transportables under it') at the back of the building was also mentioned as a worthy contribution to the learning environment to minimise the effects of extreme weather when working outside.

The teachers try to treat the apprentices 'in an adult manner' and to resist the temptation 'to bark at them':

> *Some people have a tendency to bark at them or something like that and try to get them; it doesn't work. I know with youngsters [sic] they just close off. Especially when my lads, I know when I used to have a go at them, they used to close off and that was it, but no, treat them in an adult manner, we get through the program very, very easily and I have no problems, no hassles, no real hassles with anybody . . .*

The environment is predominantly one of team teaching, with one, for instance, teaching codes and the other teaching the practical in the build-up to the codes. A variety of teaching methods and resources is utilised: sets of handout notes and work exercises, hands-on practicals, overheads,

sometimes a group situation and sometimes one-on-one, use of the teacher's experience and training videos. Other methods and resources include manufacturers' literature, reference books, the competency standards, and rotating groups of students so that those with no experience in some area are working with someone who has. One interesting example cited by one teacher involved simulations/role plays:

> *. . . it's rather interesting to see the reaction of the students . . . I actually ask them to put themselves in the position of a particular member in a wall. You know, like somebody plays the part of a wall plate, or a stud or a piece of noggin, and they have to tell the rest of the group what their function is. It's a little embarrassing, most of the apprentices being male. Then the blokes can really get stuck into one another but once they can see the value of it, once they start listening and think about the role of the member in a particular wall frame, whether it's a lintel or a piece of bracing or other components, then they can see how it interrelates, and they do tend to get a more in-depth idea of what that piece of timber or whatever does.*

The teachers are aware of the importance of the key competencies. They described part of their teaching methodology as problem-solving to develop this skill in their apprentices, and most of the projects they set are problem based. There also seemed to be a strong emphasis on teamwork skills for apprentices. A couple of typical comments from teachers were:

> *. . . how I've tackled it is that . . . I would make them as a work team and always issue out roles to individual people, like one's a supervisor, and one's a leading hand and one's going to do the orders, and they work as a team in that manner. By doing that I'm then only a facilitator, and I pick up the problems that may occur that they can't handle. If they do have a problem in that situation, then they come together as a group and I just sit down and act as a mediator to say, 'Where do we start, how do we handle it?'.*

> *In my area it is team orientated. There's very little work in the construction modules that I teach where they work by themselves. They're usually working in two or three man teams or whatever, because construction is normally a minimum of a two man team to lift the timbers or whatever. So when you talk about construction, you talk about teamwork and therefore we have to mirror that here. I can't think of a single module which is not team orientated.*

Technology and mathematical ideas were also a focus. The two key competencies that were seen as problems were communicating ideas and gathering information. One teacher thought they needed to concentrate on the communication of ideas more in their teaching:

> *In terms of communicating ideas I think that's something that needs to be brought out more in our own teaching methodologies. We certainly don't*

all do it right every day . . . we need to look to greater involvement and being able to communicate ideas and thoughts, whether it's written or verbal-type stuff.

However, another teacher saw the difficulty lying not so much in the teaching as in obtaining sufficient practice in the workplace:

It's okay in the formal sense, training here at the college. They have time and we can make time for them to go through the communication process. When they get out onto a building site, we get this feedback from the students who say, 'I didn't use those skills because my boss just told me to get up there and fix the roof'.

With respect to information gathering, one teacher explained his view that students who end up in trade areas are those who have had problems in their academic areas before going to TAFE, so it is not unexpected that they would experience difficulty in information finding, reading, extracting and writing in precis form.

The teachers claimed that they provide guidance continually. Sometimes that comes in the form of extra notes, or invitations to apprentices to ring teachers at home or out of training hours at the college, or going back over a training segment 'so that it is fairly simple to understand'. At other times, it involves giving encouragement or disciplining when necessary, or assistance with learning difficulties and even listening to 'all that sort of social type stuff' (for example, 'if they've had a fight with their girlfriend'). One teacher stressed the guidance necessary on attitudinal aspects so as to 'put their whole employment into perspective'—the value of working accurately and doing good quality work which, among other benefits enhances the relationships between trades in that it makes the job of tradespeople following their work so much easier. The teacher also stressed the importance of ecological support in terms of not wasting materials; and occupational health and safety, not just for human safety but also because it reduces the overheads of employers.

The teachers purposely encourage the apprentices to work on their own as individuals or in small groups. 'They won't learn in any other way', said one, 'you don't learn with your hands by showing them all the time . . . they have got to do it'.

. . . what I do is that I say this to them, they have to be responsible for their actions, responsible for their work and so consequently at times I answer some of their questions with questions, not answers. My immediate reaction is that the bottom line for carpenters is particularly problem-solving and so therefore I get these guys to try and do that. Of course, you don't let them fall in a hole, you keep an eye on them, but it's no good because the boss doesn't have time to stand there and go through lots of little things because he's not doing things for nothing.

Monitoring the apprentices' progress occurs through checklists, hard marking to set high standards, and observing their working both in small groups and by themselves—'making sure you don't get one dominating person who wants to do everything and the others become labourers'. Close supervision and spot checking, while at the same time allowing space for them to demonstrate they have the ability to do the set job, appear to characterise these teachers' way of monitoring.

The extent of contact with sub-contractors or host employers was very minimal in the case of these TAFE teachers. The teachers spoke of having contact 'on the odd occasion when we do make phone calls and talk'; 'now and again I speak to some of the actual people'; 'very little contact from employer to us'; 'no, I haven't had a lot of contact lately'; and 'with anybody in the workplace, virtually none'.

If one of the purposes of off-job training is to complement on-job training, then one wonders why the extent of contact should be so minimal. Various reasons can be gleaned from different segments of their interviews. Their reasons for making contact at all tend to focus more on the negative, such as 'problems with a student, either over work or other related issues such as numeracy or literacy skills', or the need to 'find work for our kids'. Another instance is when someone, for example from interstate, is needing to be assessed, either by site visit or through discussion with the host employer or the HIA. But these instances were very infrequent. Rather, contact was almost solely through the medium of the apprentice:

> *There are one or two who sort of keep a bit of contact in that they ask their students for particular information from us. They ask the students to say, 'While you're there will you just ask about this, or ask about that'. Quite often you get those sort of questions. They know they're going to come up against something that they haven't worked with for quite some time and they're going to start the job a week or so after the lad goes back with them and they ask the lad to ask about it and get some information. That happens not regularly but it does happen quite often over the years.*

> *. . . some of those sub-contractors out there are sending people here to learn how to do this because they have had no formal training themselves and the kids go back and are actually teaching those people what should be done.*

The view was expressed by one teacher that 'to have contact with employers would be a good thing and I believe that is what you have got to do . . . It is not happening'. In his view, the teachers had not been given the provision to have that extent of contact. There was no incentive to do more than the obligatory eight hours work: 'over and above that, nobody recognises what you are doing, so why should I do it?'. The emphasis appeared very strongly to be on external rewards from management rather than the promotion of a more integrated training environment for the benefit of apprentices. Another example of the lack of incentive was where one teacher had not been given funding to return to industry:

. . . last year I applied for a return to industry situation to work for HIA, to go out and actually go and visit at least 100 or so of the sub-contractors, but for one reason or another, the proposal was turned down and the funding wasn't granted so therefore it didn't get done. I believe that that should be done, that somebody from here should be given the opportunity to go work with HIA, to go through the HIA and go out and visit the workplace, the sub-contractors, the people who use the HIA apprentices.

Another reason given for the infrequency of contact was workloads within their teaching program. A further reason may be that sometimes this contact can be confrontational. Many of the teachers' comments indicated that they were often on the defensive in justifying to sub-contractors and host employers why apprentices should be going to TAFE.

If the extent of contact was minimal, the extent of actually visiting workplaces was almost non-existent. 'I haven't been out on site and spoken to many of the host employers for some time now', declared one teacher. Another said that they 'catch up at times such as HIA graduation ceremonies or some special function—usually in response to an invitation'. The most common reason was that they believed host employers were too preoccupied with work.

I think it's just a matter of the fact that they're just too busy to worry . . . The ones that we need to talk to are the ones who are on the job, who are the sub-contractors, and they're the ones who we need to get into contact with and they're the ones who don't get in contact

It is revealing that, in several cases, it was automatically assumed that sub-contractors were to come to the TAFE institute:

. . . in the HIA situation of course, they're working for sub-contractors and those sub-contractors are that flat out trying to earn a buck that they're not interested in coming here to meet us.

When asked about assessing performance in the workplace, they declared that they had been to worksites, though not very often, and usually in the context of observing students undertaking prevocational studies as distinct from apprenticeships. Comments such as the following reflected only spasmodic journeying out into on-job environments:

Yes, with our pre-vocs. I would, because at the end of the time I have got to give them a result at the end of the 20 weeks of how they performed.

Yes, I have been . . . Over the last two years I have spent time out on two housing sites.

I have. I've done a couple of on-job assessments with HIA sub-contractors very early on in the piece when the HIA was developing their group scheme and they were taking on not only new entrants to the trade, they were taking on some pre-vocational students and they were also taking on

some people that had building experience, perhaps not heaps of it, but certainly some of them would ask the question, 'Why do I need to go to trade school if I'm doing this down on site? Can't somebody come out here and look at what I'm doing?'. I went out to a couple of sites, that's going back at least three years ago.

Almost all of the assessment done by teachers therefore took place within the college. The teachers had different ways of expressing what happened. One even seemed to discount any performance assessment, saying that:

. . . there is nothing off the job, the only thing that is off the job here of course is their technology assessment which is the serious side of it and of course that is done in the classroom and that once again is just by subjective test, cognitive-type thing.

Others acknowledged the common use of checklists against the required standards, administered at the end of every module. The importance of quick feedback was appreciated. Given current policy on competency-based training, the descriptions of their assessment methods are very informative:

We have breakdown sheets that we can use, where we actually put it down and then itemise each part of it and then you tick them off. Competency-based training and that type of thing nowadays. Where you can actually break up the system of work they are doing into each task and then tick them off that they are competent to do that.

Some of it is criteria level. With most of the work I set criteria to say that certain parts are worth so much in points or it may be just an assessment of a competency thing, that they are competent of doing that and marking it accordingly and saying, 'yes, they can quite capably carry that out'. But of course they want to know a level, most students I find want to know their level of mark, so I grade it accordingly. Some things I sit and write a competency-based thing that lists the tasks that they have got to perform, and then out of that, grade each task, say that it is worth 5, 10 or 15 and then come up with a total. Then mark them off and if they can see where they go wrong, they are not sufficient in this area or they are not productive in that area and then it adds up to a total assessment and there is your mark. Either a credit or high pass, or just a pass or fail. So they have got the option of four areas.

The construction of the off-job learning environment was not without its difficulties. One was that some teachers were teaching in areas in which they were not confident and 'of course that rubs off on the lads'. The view was firmly expressed that:

where you have got specialist areas, I believe that the bloke that is specialised in that area should teach in that area because he is the one that has got the greatest confidence and can instil that confidence in the

student themselves . . . they think here that you have got to be the jack-of-all-trades and know everything, but unfortunately it doesn't work that way, and it doesn't rub off on students that way either.

Another difficulty was class group size, which was seen to be too high. It was recognised that this does not 'get the best out of the lecturer' and contributes to stress among the staff. One teacher expressed his opinion that classes should not be, in industry training such as in the building industry, greater than ten.

A third problem was the pace of keeping up with industry in order to teach material properly. While this was indeed acknowledged, the minimal contact with industry mentioned above does not appear to assist in this matter! Rather, subscriptions to magazines were stated in passing as the key means of keeping up to date with new products and techniques, in addition to utilising associations for up-to-date materials which can be passed on to apprentices.

A fourth difficulty was the level of student. This was expressed in different ways, but principally in terms of their dependence and the difficulty in weening them from the teacher to be more self-directed in their learning:

In most cases the student has to put an effort into thinking. The level of student that we're getting through doesn't want to get involved with that, because that's too much work for them. They like to be led. Through the high school system, they're supposed to have picked up problem-solving skills. I don't know what the bottom line is, but when the students come into their formal training here, they don't want to problem solve, they want to wait for the lecturer to demonstrate . . . If the lecturer doesn't demonstrate on a one-to-one or group format, the trainee has the attitude of either I don't need to know that because I'm not doing that at work, or I can't work it out and I don't want to work it out, or they just shut off. That tends to be the level of their training coming through this training institution. I guess that's probably repercussions from their earlier stages of upbringing and training.

Another aspect concerning apprentices' learning was their limited ability to extract from printed, as distinct from video or computerised information, and to write in their own words:

They can usually pick things out from videos and that, you show a video and you have a questionnaire on videos, even after the end of the video, you can usually get everybody to fill in the answers, but it's a different story when you have to read, assimilate and pick out.

. . . for them to be able to pick out the most pertinent words out of that [for example, AS1684, the National Timber Framing Code], out of say four or five sentences, and for you to say, 'write down what are the limits that are written in that', they have great difficulty in being able to understand what you mean by limits or the terminology that you've used.

The terminology is something different from what they've been used to in school, and I find that a majority of them at school have had a great difficulty in reading and assimilating and writing one sentence in their own words . . .

The stories of the TAFE teachers on how they construct the off-job learning environment reveal several interesting ambiguities or tensions which, if they are manifested in the teachers' practices, the apprentices could not help but notice. To what extent these ambiguities or tensions affect the apprentices' own opinions of their off-job training—or their accounts of it to their sub-contractors and fellow workers on site, or their attempts to integrate their off-job learning with their on-job learning—is a moot point. We return to this issue later in chapters 7-9.

What are some of th se ambiguities or tensions in their stories of the off-job learning environment? Firstly, there is the issue of climate. On the one hand, there was the claim that apprentices were treated as adults, yet on the other, the language used in interviews seems to suggest that practice may be at variance with this. For example, the apprentices were frequently referred to as 'the industry boys', 'youngsters', 'kids' and 'lads'. Moreover, some of the teachers drew attention to the need to maintain a discipline-oriented environment:

We're grumpy old buggers here, we don't do anything by chance, we do it deliberately. We're the old school, with a discipline-type situation. I think that's where you do sometimes have problems in certain education areas that will remain unnamed, but certainly we know that, to the people in the industry, we're accountable as well, so that we do the right thing by the apprentices . . .

. . . 'look, your performance level is down, lift your game and if you want to get a better mark, you have just got to pull the line; if you don't want a better mark, you won't get it from me', and I inform them that either they toe the line or the employer will be told. 'There are plenty of people who want a job. So if you don't want to work, don't come here.'

Others compared apprentices with adult classes in a somewhat disparaging manner:

I feel that, if you give me a class of adults—which I have had—adults want to learn. Apprentices at the adolescent age of the 17s are in a limbo mind; they think more of what they are doing in the night, or what they are doing on a job during the day, or what the future holds for them, so really I am a mediator to say, 'Forget what you are going to do tonight, come back and let's concentrate today on what we have got to learn . . .'

Secondly, while they acknowledge that apprentices in various types of employment situations come to TAFE with various types of experiences, and that they like to treat them as adults, there appears a reluctance (at least on the part of some teachers) to build on apprentices' experiences:

> *I don't usually chase up who their employers are . . . because I try and treat everybody the same, and I don't try and single out individual people because of where they come from, because they bring varying skills from whoever they've been working with and bits of knowledge that they've gained mainly by seeing what happens.*
>
> *I personally don't draw on [apprentices' work experiences], it should be them that are drawing on their experiences out there. I am too old in the tooth to be drawing on their experiences, I should know it by now.*

Thirdly, there is some ambivalence about the nature of their learning environment and its consequent value *vis-a-vis* the on-site situation. For instance, some of the teachers in the interviews qualified their descriptions of practice with prefacing remarks like, 'as much as we can in a college environment'. The key underlying dimension appeared to relate to the realism or naturalism of the worksite, as articulated in these few excerpts:

> *Over the last two years, I have spent time out on two housing sites . . . Both times I had taken the responsibility to set up a learning environment, organising a classroom on site, developing student notes, assessment procedures for the clientele on site, working in with the contractors. The training was structured around the working environment, so the students had to produce . . . houses. They had to read the plans, they had to work in groups, they had to supervise their own quality of work, they had to understand the materials that were listed on the take-off sheets. So we went through that process of planning, construction and evaluating. At the end of the job, the students had gained a lot more skills in that process because it was real work. What they had built had to stay there and they were responsible for the quality. It was interesting because of that . . .*
>
> *Certainly for the reality of it [workplace training], it is the best type of training, but whether we can afford to do it all the time . . .*

Fourthly, the teachers' different stories of their assessment methods and grading practices suggested some ambiguity in this area, or at least different interpretations of what was actually happening. Some said they used marks, others competency achieved, and at least one had his own system of differentially weighting criteria to obtain marks; some preferred one, some the other, and at least a few of them wished the alternative—whatever they weren't using—was the normal practice:

> *. . . an assessment test at the end of every module, and there's a mark for that. It happens to be a percentage mark but there is some suggestion that we'll probably go across to competency achieved.*
>
> *. . . [I] tick them off that they are competent to do that. Not that I like competency based, I would rather still have the old system where you give them a mark because you can say a person's ability is okay up to a certain standard, but you have got no mark to put there, just competency achieved.*

. . . by subjective test, cognitive-type thing, whether they remember or not or whether they know it off pat. The bloke that has got a good memory will suffice and get through with top marks, the bloke that hasn't got a good memory but out on a practical field he can do the mark but just can't explain it or express himself, so that is a fairly hard area as far as I am concerned.

TAFE teachers' views on what is contributed by the off-site environment to apprentices' learning

TAFE teachers had relatively clear perspectives on what the off-job environment contributed to apprentices' learning. They saw their role as one of providing a broadening of apprentices' knowledge and skills beyond the specific worksite experience, and of developing work confidence and the capacity to synthesise alternatives into personal ways of working. Their contributions were perceived as the following:

- introducing apprentices to different techniques and materials—'there are many ways of achieving the same result in terms of method'
- confidence to work
- new skills that apprentices may not be able to be taught on the job (because the trainer hasn't time to stop working to show apprentices)
- increased knowledge, particularly a knowledge of 'why', the potential to evaluate and the possibility of establishing their own approach:

  I guess that I see myself much of the time as being a person who can give them the whys and the wherefores. I see our environment giving students an appreciation of the whys and the wherefores at the same time as giving them a practical demonstration of that reason.

  . . . what we do increases the knowledge base of the student and allows them to then evaluate the method that they've been shown compared with the range of stuff that we deal with here. They might in fact use a hybrid which happens to suit their particular learning style or the way they happen to prefer working.

- a broader understanding: for example, 'of how the method was developed, and I think that's probably a significant difference with off-the-job training, compared with anything they do on the job'. Another teacher also considered this contribution as 'probably one of the most significant differences', using as examples more opportunities for wider thinking and teamwork:

when a trainee's working out on site, they might work with one tradesperson, maybe two, but usually the sub-contractor is fairly small and so they're really only getting exposure to one or maybe two lines of thinking. Whereas they come in here and they certainly get that broader exposure and the whole idea of teamwork and the value of being able to help one another.

In the off-job environment, teachers claimed learners had the opportunities to 'tackle things that they might not necessarily do' on the job. This was either because the scope of the work was not broad enough, as in cases where employers specialise in certain areas, or because the sub-contractor did not entrust the apprentice with the full range of tasks:

. . . the tendency is that one tends to lock into a narrow groove and not necessarily broaden their outlook so whilst they're going to be involved in the housing industry, there's a lot of aspects of the housing industry that some don't tackle [in the workplace].

The broadening process was defined by another teacher in this way, using an appropriate metaphor for a carpenter:

What we're trying to do is give them a broader outlook so that, for example, if he decides he's had enough of wall framing and he wants to go into second-fixing, at least he's had some knowledge and skill here of doing that, with hanging doors, and doing mouldings and skirtings. We try and offer that so that they've got some other hook to hang their hat on. At least when they walk on site they've got some basic knowledge. It might take them a little bit longer to learn, and they may need that extra help, but they've certainly got a basic knowledge of it.

- small business skills. The off-job environment was seen as the more suitable place for the development of skills in estimating and costing projects—'If they're ever going to go into a business for themselves, then they're going to need these sorts of skills'. Another example was the interpretation of codes:

We tend to look at some of the paperwork side of it, more so than obviously they would on site . . . Certainly from our point of view, if we're talking about timber framing codes for example, which is the bible, we go through that in a way that they understand and we don't bore them. At the end of the day they have a basic knowledge. If they have a problem they know where to find out the answer, and we utilise exercises in that way, so we're broadening out their ideas.

Reference was also made to the acquisition of small business management knowledge and, in particular, the development of computer skills:

If he [sic] wants to be his own employer in a small business, then he has got to know small business management, he has got to know how to use these new types of aids [here, talking about computers]. We have that facility here . . .

- appropriate attitudes to occupational health and safety

  . . . for people to work well on site they've got to have an appropriate attitude. They've got to have a good work ethic. Therefore, by understanding not just how to drive a nail into a bit of wood, but the implications of not being careful or wearing eye-protection and all of that occupational health and safety and general care and support-type stuff, if that's not going on or not demonstrated to the trainees, then they just won't get the full picture.

- correct work standards

  . . . there's things that they do on the job that are maybe not quite up to standard but it's accepted. When they come into a place like Marleston, they get all that background stuff, they learn to work through the timber code, they know what the regulations are and why they're there, why they've got to take particular care in where they put a strutting beam or roof truss and all that sort of stuff that's required. Similarly with drawing or estimating, they get time to develop that skill and knowledge.

- basic principles

  . . . really what we are teaching is principles. If we start with a basic principle, then we can work on that, and I believe that is our job to get through to them that way, then they have got to work from that.

  It is a matter then of applying the basic principles and building on and building up . . . how to work safely, how to conduct themselves in a most productive, efficient manner. I think that is probably our role more than anything.

- a climate conducive to learning. This climate was articulated in terms of less pressure, the opportunity to work in a team with other learners and the availability of support commensurate with their pace of learning:

  That's the significant thing that the training here does. Certainly it's that team building and the opportunity not to have the pressure of trying to earn a dollar that is so commonly experienced out there. The sub-contractor has to do a certain job in a certain time for a certain value so that he can pay the wages and survive himself. By coming in here they really do get the opportunity to learn at their own pace, they get the potential for a variety of learning styles from people who are particularly gifted or just happen to be in a module where they know heaps about it, and can get through it very quickly . . . At the other end of the spectrum, people who perhaps are slower learners get the opportunity to work their way through it and get a level of support that the on-site environment doesn't necessarily provide.

- economies of scale. This was explained in terms of teacher-learner ratios:

  The interesting thing about it is, though, that when you're off the job and you're working say at the institute simulating a lot of this training, then you do get economies of scale by having a bigger group. The lecturer's time and expense is devolved across more people, whereas out on the site, you've got the disadvantage of having one house and 12 students working, then it's probably bees around the honey pot, and people treading over one another. Whereas the optimum group is perhaps three to four, and that way you know that in a given period of time, if the students get the wall frame up and they're at the appropriate standard, then they've all worked together and they all must have worked on the building, rather than perhaps standing around the corner and having a cigarette. So economies of scale and cost for on-site training is one of the issues that needs to be looked at closely.

The teachers believed that, in providing knowledge and skills for apprentices, they were contributing to the continuing professional development of sub-contractors and host employers, especially in terms of standards, codes and correct methods:

> *We give them the ultimate standard and then they can work down to the standard of what the boss wants or, in some instances, they can leave here and go and tell the boss 'that is not right, this is the way it should be done' and then some of the employers adopt that method.*
>
> *. . . [information] as to whether some of those practices are actually correct or not, because sometimes some things are missed out when they're working to a timetable or to the almighty dollar.*
>
> *I approached the sub-contractor who was supposed to assist in the practical side of things, the sub-contractor was lacking some knowledge of the standards required. His comment . . . was, 'The codes were too dear to buy'. Therefore he wasn't going to keep up to the standards. The [other] one that I was involved with . . . we found that there were some problems on the plans which the sub-contractor didn't identify, nor the supervisor, so I used that as a good example of taking the students through a learning process, redrawing the plans on site and developing a step-by-step process for apprentices to construct a roof. During that time I had consulted with the sub-contractor and the builder to find out if they were aware of the problems of the drawings. They weren't aware of them and so the sub-contractor learnt something . . . The training on site really is not only an advantage to the apprentices but it is an opportunity for the sub-contractors to get involved too, and be retrained and to update their skills.*

The teachers, however, recognised that the fulfilment of this last function required them to remain up to date themselves. Keeping up to date was clearly seen by some teachers as a critical challenge. One said 'we are

trying to update all the time', and another that he was 'at the moment . . . researching and bringing up to date the curriculum, because we have just changed the curriculum'. A third teacher candidly acknowledged the difficulties in this respect:

> *We try to keep up with industry ourselves, although I am of the opinion that it wouldn't hurt each and every instructor/trainer to go back into the industry, because I feel that some of the teachers get into a groove that what you did 20 years ago is still the done thing. But it is not, times have changed. People just get into those grooves.*

One of the ways of keeping up to date, albeit rather serendipitously, is to question apprentices or to listen to their conversations. The following extracts from interviews illustrate ways in which the teachers maintained currency:

> *. . . industry hits new ideas before we even hit them because they are new products on the market or they may be doing something new in a building materials sphere. Then I question [the apprentices] and find out what is going on. If something new comes up, well then we can discuss it and say, 'Hell, that seems good to me, where do we get the information?'. It keeps me abreast at times as well.*

> *Like training itself these days, the industry is evolving and technology and different methods of doing things occur out on the site. As a lecturer ensconced in the institution, when you are delivering classes, obviously you can't be out on site or talking to manufacturers or the industry people, but . . . some students come in and you'll say, 'This is the way we do it', and they'll say, 'But we do it this way out on site'. Therefore, by a little bit of probing, you can find that they've got a new type of fixing . . . So it's a matter of listening to what the student says and, occasionally, when you're in general conversation with them rather than in a full-on learning situation, you try and find out what they're doing out on site . . .*

> *I'm always on the lookout to find out from them whether there's any different way that people are doing things and, after some 40-odd years in the trade, I think I've seen them all, but I don't, because there's still things that are coming up. One of those was just recently—a lad came along with an idea that his boss was doing and, when he pointed it out to me, I had to stop and think to myself, 'Now will that work or won't it?'. Having seen it in the practical application, it works a treat and I've passed it on to other people. Other people have said, 'Oh, I never thought of that' . . . I've always worked on the assumption that I'm never too old to learn . . .*

It was significant that some of the TAFE teachers in the interviews were intent on making the point that they were all 'ex-tradesmen', and that 'what we teach is industry relevant because of our contact with the industry'. Credibility and relevance appeared to be issues in their minds, just as they were in the minds of the host employers.

What teachers believed the on-job learning environment was not providing

The teachers' construction of the off-job learning environment is, to some degree, influenced by what they believe the on-job environment is not doing. Their attitude tended to be one of 'if we don't educate the apprentices, then they won't be prepared for their vocation'. Some of the teachers were rather blunt about their on-site counterparts' role with apprentices, despite showing they understood the very different ethos under which sub-contractors worked, with different purposes, different work methods affected by time pressures and different motivations.

Some of these criticisms referred to the quantity of training apprentices receive on site. The teachers did not believe much training, as they defined it, was actually occurring in the workplace.

> *I don't think that they train them. There would probably be a couple of blokes around town that would train people, apart from that, there are not too many.*
>
> *My assessment . . . is that where people are working for sub-contractors, then in the main they are getting very little training as such. As long as they can operate a saw and measure accurately, can lift and use a nail gun or hammer, as long as they can do it at the speed that equals the person they're working with, those seem to be the criteria. I get the impression from students that I talk to that when they ask, there are a lot of people who say they're too busy to tell them.*
>
> *We teach all the practices that they should be doing out there. The problem comes when they go out there, and the sub-contractor will say, 'we are not wasting our time doing those' and they are back to square one.*

One of the key reasons for the lack of training in the teachers' view was that host employers do not really see it as part of their role. In fact, one teacher referred to the host employer as 'a pseudo trainer going flat out to make a quid', and questioned whether they even recognised when they were training as, 'unbeknownst to them, [they] sometimes perform a training role'. Another reason was that the concept of on-job training was new and only in vogue because of economic downturn:

> *. . . with industry on the down, on-the-job training picked up by industry is a new toy to them. It's a toy that they're going to play with to see how it works.*
>
> *. . . companies are only providing training because of the downturn in the industry. If and when South Australia picks up the amount of work required, then I think that industry will then forego training, because they'll need their people to produce the work, to make the dollar, to get a profit, to survive. Therefore training will then become a burden, and they'll hand that back to the likes of the private provider or TAFE.*

Other comments focussed on the quality of the little training that they perceived was happening on site. It was characterised as rushed, too specialised and overly task oriented, limited in scope and resources, and less than supportive:

> *Usually on the job is fairly rushed. They get instructions on what to do, but rarely do they get why.*
>
> *One of the things that we also found is that they pick up bad habits out there regarding safety. The guards are taken off, they stop the blades of the saw with their finger and that type of thing. That goes on. It is horrifying.*
>
> *I find that with most of those people, their experiences are fairly limited, so that they may have worked only on the framing for example, or only on the roof, or they may have only worked on second fix.*
>
> *. . . on-the-job training means that the employer has to provide the resources to complement the skills or enhance the skills that have been trained at a formal level. At this stage in South Australia, where we are predominantly sub-contract driven in the industry, the sub-contractor will never have time to have those resources. Therefore, the sub-contractor will never have time to do any on-the-job training . . . At the moment that is how I see it and I could be wrong.*
>
> *On-the-job training seems to be that they are the assistant to the boss. Therefore, they're expected to be able to pick that piece of timber up there, saw it to the length that's required, and put it in there and nail it. Not why it goes there, not why it should be 600 away or 300 or whatever, or why it should be directly underneath and that sort of thing. Not why that particular member is a different size to the one beside it and so on. That doesn't seem in most instances to happen.*
>
> *[Name] I know out there, he is probably one of the best ones that if I had an apprentice I would put him out there with. There is probably only a couple out there who do the same, but on the whole they are just people that have picked it up. . .*

These impressions—one assumes that they cannot be anything else given the very limited contact of the TAFE teachers with the workplace—are likely to have a considerable impact upon their views on the degree to which both environments complemented each other.

TAFE teachers' views on how well the on-job and off-job learning environments complement one another

When asked how well the on-job environment fits with their constructed off-job environment, one teacher declared that 'in some cases it doesn't'. The reason given was that 'outside, there are too many people that have picked up the tools and have actually done no apprenticeship, no formal

training whatsoever' and 'just follow the leader'. In these circumstances, it was not considered surprising that the on-job training did not complement the TAFE component. Another teacher said: 'I don't know whether it helps them a lot'. The reason this time was that the industry is so diverse—'different employers have got different ways and different methods of doing things . . . different amount of fittings, different amount of power tools, these types of things, so it is a big range'.

In many of the interviews, the teachers launched into interesting stories of encounters with industry personnel and of their apologetics for off-job training. Analysis of these recounted arguments reveal what teachers are thinking about the role of off-job training and the issue of its integration with on-job training, and how they justify the importance of their part in the overall education of the next generation of carpenters. Below are three such accounts which, while rather lengthy, provide the context for their perspectives on complementarity.

In the first episode, which is intriguingly labelled as 'confrontationist', the teacher emphasises the importance of underpinning knowledge and understanding the reasons behind practice, which is stated to be the prime contribution of the off-job environment:

> *Sometimes it can be a little confrontationist, because we get out and we're talking to somebody and they'll say, 'You waste too much bloody time down there at the school teaching them. They're doing this out on the site, why do they need to go to trade school and learn that?'. One of the classic responses I have is to say that 'Well, okay, they can nail a frame together and they can stand it up, they can plumb it and do all of that, but how much time do you as the host employer spend with them going through the timber framing code? How often do you sit down and say, 'Righto, there's a plan, take off all the studs and quantities for me and price it?'. How often do you say to the student, 'That roof up there's a little bit tricky, just sketch up how you think you're going to do the job'. And they usually say, 'Well, I just haven't got bloody time. We're too busy making money'. And I say, 'Well, that's one of the reasons why they come to trade school'. It's because they get the opportunity to get the background behind driving the nail into the piece of wood. That's probably the difference between the on-site stuff . . ."*

In the second story, this time described as a 'challenge', the teacher stresses the importance of the role that a host employer can play as an on-site trainer in passing on practical skills while working next to an apprentice. If this does not happen, the teacher raises the question of where the learner is going to pick up those skills:

> *I do have challenges with employers . . . because the employers come back to me and say, 'I don't need you to teach my apprentice or trainee what you're teaching them'. Then I say, 'Well, what do you want us to teach them?'. Their reply is, 'All I want my student to be able to do is get up*

there and nail or put things together'. My reply back to them is, 'That's fine while you're still alive or in business, but what happens if you go broke and the student then has to go out and work for themselves. How's that person going to pick up the skills which you've got?'. And of course the employer doesn't see that, because in the short term he's out there to make a dollar. With that in mind, the trainee has got something like another 40 years in the industry where the employer may only have another ten, so there's 30 years of skills that person has to try and learn. It brings the employer back to reality in that he realises he's not going to be there for the whole of that trainee's working life.

The teacher in the third story highlights the point that experienced workers often forget that they themselves had to start somewhere—that his challenge is to get employers to understand that where they are today is because they had formal training at some stage themselves:

. . . by the end of the day and we've sat down and had this bit of a talk and we've put our perspective, the host employer says, 'OK, I can see that point'. Whilst they may agree to disagree, they acknowledge that there is reason for people going off to trade school and learning these other things. It's very easy when you're out on the job trying to make a living to overlook the fact as to how you got your knowledge. Whilst I'm not saying that what we're doing today is not better than how I learnt my trade or others that have come along in the meantime, the hip-pocket nerve is a mighty motivator to keep the job ticking over, and sometimes people lose sight of the fact that they had the opportunity to get all of that background knowledge and that's what's made them a successful builder. Without that support and knowledge, we're really going to see a downturn in the knowledge base of our tradespeople of the future.

There were two other key factors in the complementarity issue mentioned in the interviews. One was the lack of coincidence between tasks done on the job and those learned at TAFE. The TAFE teachers were desiring 'a reinforcement of what we're doing here' in the work done on the job. The second was the need for employers to have 'a good attitude towards TAFE', 'take some time to explain why they're doing something' and 'be responsible'. Given these circumstances, then in the view of one TAFE teacher, on-job learning 'really does complement and work well', and allows the apprentice to proceed at a faster rate of learning.

One teacher believed that the working relationship between the HIA and TAFE was 'very good', particularly when compared with 20 or 30 years ago when it was more 'them' and 'us'. He elaborated to extol the virtues of such a relationship:

Now I think it's very much togetherness, and I think that's critical in this day and age where our industry is not as great as it should be, for many reasons, one of them being economic. We need people to be able to work together to be the best trade that it is.

Another teacher also expressed his view favouring integration, and the reasons for it:

> *I believe that the two are necessary. I'm committed to both because I can see that out on the job the trainee gets the opportunity to practise repeatedly, and that to me is the key bit of achieving their competence. That's probably one of the disadvantages of coming in to trade school, when you look at the amount of time allocated to attending off job . . . For somebody to expect that they're going to be a competent tradesperson because they've been to trade school for 10 per cent of their indentured time, is just not on. It's the opportunity in off-the-job stuff to get that very broad perspective and a lot of the stuff of that, out on site, they just haven't got the time to go through, but the on-site stuff is critical for the practising of the competencies that they have to achieve. So they get the rudimentary points, the starting stuff when they come off the job.*

Teachers at various stages of their interviews made comments on the issue of integration. Some were about changes they would like to see. One suggestion related to teaching on site to provide a more holistic training for the apprentices:

> *What I would like to see is for the housing industry to put aside houses in certain areas where they could be grouped together or something like that and have an on-the-job training area . . . The basis of that was set up in South Australia and that is what we were going to do. They have picked it up and run with it in New South Wales, but we could do that here. There is no reason for us not to go out there and teach them on the site how to do it. You could have four or five houses going up and you could have a classroom out there, a mobile classroom or something like that, and you could teach them out on site. No problem with that.*

Another suggestion involved the freeing of time for teachers to visit industry:

> *I would like to be able to say to our management, 'We need time to have site inspections with employer groups', mainly to keep up with (a) communication with industry and (b) the thoughts of training within the industry. On their thoughts of training, something that we are not doing right. They can give the input to us that we can bring back and then implement . . . I believe that is why we have got to get out and be a market force really.*

Yet another concerned the rotation of apprentices in a situation where specialisation of sub-contractors leads to narrowly based on-site experience:

> *I think that we need to really look at the opportunities that are given to the trainees, in particular the HIA trainees because they go with a host employer . . . They may only be specialising in wall frames. At the end of it the employer and TAFE say, 'This person is a competent tradesperson'.*

I think we really do have some questions to ask. I think one of the things that the HIA needs to consider, although I understand the dollars and cents of this problem, and it's very difficult to take the trainee away from the host employer who is prepared to keep them on for an extended period particularly at the moment with the downturn in the industry, but one thing that I think we do need to work together on is how we are going to balance what they're continually practising out on site. They may become very good roof framers or wall framers or second-fixers, but if they haven't had a chance to practise other ranges of skills that they're supposed to be developing as a carpenter, and they're only relying on what they're doing at trade school, for a person to be called a tradesperson they need to have the opportunity to practise the basic cores. Having to adapt a basic skill level on one job going to the next and having to adjust because there's something a little bit different or the architect's drawn it a bit different or requires something done slightly differently, it's that problem-solving stuff or the ability to translate or move knowledge to solve the problem that's required on that job. I would see that as being one of the major things, not just the HIA. I believe that the HIA and other groups have a prime opportunity to be able to ship their trainees around and get that breadth of experience. Whereas you take a father and son type operation, then whatever the dad's doing, if they are specialising in one area, then that trainee gets a very narrow view of what the trade's about. That's one of the problems I see with the industry being so sub-contractor oriented, but with a group scheme, notwithstanding all of the problems with moving the trainees around, I think they have a prime opportunity to be able to look very closely at the on-site experience that their trainees are getting and be a little more conscious of the need to move them around. That's not only on the head of the HIA, it's certainly on the head of their members that they place their people with.

Another comment was made about the lack of attention paid to equal opportunity in the building trade, and the need for more effort and promotion to attract women, Aboriginals and non-English-speaking-background people into the field:

One of the things the HIA and their members need to look at, as well as the industry generally, is a more responsible approach to equal opportunity. Certainly I know the HIA in its policies embraces the notion of equal opportunity, but we've got to do more of a number on the actual host employers to be prepared to take on more young women, Aboriginal people and people from various backgrounds . . . Even the construction industry training plan, whilst it reflects some effort to address equal opportunities and social justice, it's just focussed in one area, and so I'm perhaps a little critical of that. If we relate all of that back to that whole training issue, I think that more encouragement, more promotion needs to be given to that side of it. I'm not saying that there's 10 million women out there who suddenly want to put on a nail bag and

become a carpenter, but there are some, as there are Aboriginal and non-English-speaking-background people, who have a whole range of skills that we can certainly learn from, not only in relation to being good carpenters but being better people.

These suggestions for change are summarised later in chapter 13.

Summary

The TAFE teachers' portrayal of the off-job learning environment that they consciously construct for their apprentices is characterised by the following features:

- caring
- relatively non-pressured in terms of time
- structured around project teamwork in preparation for a small business trade
- focussed on standards
- safety conscious
- based on principles
- broadening in scope and purpose

It may be summarised as a learning environment designed to equip students with the norms and values of the vocation of carpentry as well as the skills and knowledge required for work in the industry in general, rather than for a job in particular. The off-job learning environment serves as both complementary and supplementary to the on-job learning environment. And yet there are the inevitable ambiguities and tensions within it, and a minimum of contact with the workplace except through the somewhat serendipitous medium of the apprentice, that ensure that it is certainly not unproblematic.

The teachers expressed a lot of concern about the work-site in terms of training, safety, maintenance of standards and job specialisation in the face of earning a dollar. To what extent that concern reflects a real preoccupation with these matters, or is simply a way of justifying what they in the off-job environment concentrate on and are able to do best, is a matter of conjecture. Whether their perceptions of the role played by the on-job learning environment are accurate is not so critical. Whether their perceptions of the lack of training in the workplace (for whatever reason) and the relative neglect of apprentices' interests are as dire as the teachers declare, is not the germane point. The social fact is that they have these perceptions and believe them to be accurate, and accordingly act as though they were true.

There is no doubt that the teachers all articulated a genuine interest and concern for the welfare and broadening education of their charges. They had quite definitive views on what they were contributing to the apprentices' learning from their off-job environment. There was evident a certain degree of morale loss and defensiveness about their role as TAFE teachers, and an acknowledgement of the problems related to the physical environment and their lack of contact with industry outside. However, they sincerely believed that they were doing their best for the apprentices and broadly preparing them for their vocation.

What is important, however, is the experience of the apprentice. The constructed environments for the pelican have been analysed and interpreted. The narrative now turns to the actual flight of the pelican as it enters these worlds and sets out to learn to fly. How this constructed off-job learning environment, as well as the constructed on-job learning environment analysed in chapter 5, are being experienced and to what extent they are being integrated by the apprentices, is the focus of the next part of this report.

7 The on-the-job experience of the apprentices

The building site is a primary place of learning for apprentices. It is where they spend most of their working time and it is the environment where they are exposed to the full range of activities associated with their chosen trade. This chapter explores what it is like to learn on the building site—the on-job learning environment constructed by the host employers and already analysed from their perspective in chapter 5. This chapter starts with an examination of the notions of learning held by apprentices in this study. The focus then is on the learning process as described by the apprentices and the specific issues and events that they believe assist and hinder them in their learning.

Notions of learning

Learning is a very complex and individualised process. The apprentices often found it difficult to single out a particular learning event or to describe in detail the process of learning as they experienced it during their work. For many the evidence of a finished job or task ('looking back') brought with it the realisation that they had learnt something. For a few apprentices learning was so inextricably linked with their work that separating the two domains was not possible. In the words of one apprentice,

> *[learning] is a way of living. If you don't learn you don't do anything. If you don't do anything, you don't make money. If you don't make money, you're dead.*

One of the most common ideas about learning expressed by the apprentices was learning being associated with new or novel situations ('I didn't know it' or ' I hadn't done it'). Repetitive tasks, or those which were viewed as 'labouring', were not often linked to learning, except where repetition was an important part of the learning process (as in the case, for example, of increasing speed and/or accuracy).

Learning as an activity which involves persons other than the apprentice was particularly prevalent amongst younger, less experienced apprentices. The notion of being 'taught' by other people in a directive manner, rather than being left to 'pick things up', was a key component

of learning. For this group too, learning was most strongly associated with working on site, 'doing new things' and knowing that there has been a qualitative increase in the amount of knowledge held by the apprentice over a set period of time.

> *Learning is . . . knowing that you have gone home and you know more things when you have gone home that night than what you did when you went out.*

The idea that learning is about acquiring knowledge ('getting knowledge into my brain') or 'understanding how it can be done' was also a prevalent theme in apprentices' responses. This act could be viewed as an informal one whereby the apprentice 'picked things up' or was able to 'see something', or it could involve participating in certain activities and experiences ('doing things') which assisted them to 'get the information'.

Notions of 'seeing' and 'picking up' were often used by apprentices when they defined learning. When probed about these notions, apprentices were clear that 'seeing' and 'picking up' should not embody any concept of themselves as inactive participants. Rather these notions of learning involved the apprentice in a complex array of tasks and cognitive activity, which could include watching coupled with analysing the observed event into its component parts so as to reproduce it again at a later stage. The apprentice may also be called on to make judgements about how to translate an activity from one location to another, incorporating any modifications required. 'Picking up' could also require the apprentice to model the behaviour of the person with whom they were working, replicating all the fine details as well as the speed and accuracy which accompanied the performance. The activity of 'getting the information' was often coupled with the process of 'memorising'. Success in the process of memorising or retaining information (and hence, evidence of learning) was manifest in the apprentice being able to 'do the job right'.

The complexity of these processes is underscored by a number of apprentices who emphasised the inappropriateness of this notion of learning for less experienced persons who are clearly being expected to undertake this learning in parallel with their work. This is in contrast to the notion that learning and work need to be sequential events, where the process of work becomes the site for reinforcing, consolidating and expanding the learning which has been catalysed by incidents away from the normal routine of work where there is a deliberate act of teaching on the part of the host employer:

> *Learning [is] getting taught a lot of things . . . that is the only way you are going to learn because you are not going to learn a lot by having to pick things up.*

Apprentices who were well advanced in the trade often spoke of learning in a manner which suggested an individualised and sometimes solitary process which did not carry with it the problems spoken about by their

less experienced counterparts. Learning in these cases was defined more in terms of 'trying something new' without direct guidance, 'figuring out' something or having the confidence to apply what is 'in your own mind'. Learning was viewed as an important pathway in the development of routinised skills and the ability to return to situations previously encountered during their apprenticeship, and being able to deal with these effectively and efficiently. Dealing with a variety of contexts and the building of internal feelings such as confidence were considered to be significant components of the learning process.

One of the key notions that often appeared in apprentices' descriptions of their learning was the relationship with the host employer with whom they were working and the ongoing—but changing—nature of their learning over the period of their apprenticeship. The commencement of this process and the importance of those early days on site is now explored in some detail.

Getting started

From their accounts, the early days as apprentices were exciting and challenging ones, as they sought to adapt to the demands of the workplace. Their memories of their first days on the job varied widely. For some, it was part of a natural process that had begun many years ago. For others, it represented the first deliberate step in a planned career path. Notions of learning did not feature strongly in apprentices' recollections of these days but they clearly provided a foundation for the learning that was to follow.

The first days (and for some apprentices, weeks) on the job were a time of adjustment. These times were characterised as 'nerve wracking' by many. Those moving straight from a schooling situation into an apprenticeship found themselves in a situation which was totally new, feeling that they lacked control over what might happen to them. They clearly felt ill-prepared for the physical requirements of the job. The physical exhaustion of working ('I fell asleep in the car on the way home!'), getting used to wearing heavy boots and feeling tired and sore after a full day of work were vivid memories for some apprentices.

There was also a notion that early weeks at work served as an initiation into the housing industry, with the apprentice 'learning' and earning his rightful place within the hierarchy on site. For some this initiation was a daunting process. One said, 'I was like a lost little puppy dog, tagging along. I didn't know anything'. Another expressed it this way:

> *I was just, if you don't mind me saying, a 'shit kicker', just carting stuff around and I really didn't know much about what was happening . . . and I just got called 'stupid' all the time, got paid out, nails shot at me and stuff like that. It wasn't very exciting.*

For others it was tinged with excitement and the anticipation of a new environment where 'you had a lot of things to learn' and needed to 'get down to work straight away'. This latter sentiment was particularly prevalent for those apprentices who had some exposure to the building industry before commencing their apprenticeship.

One significant factor which seemed to impact on the apprentices' early experiences on site was their prior experience. Where previous work experience had been positive, the transition into the role of apprentice was described variously as 'pretty relaxed' and not presenting any notable problems.

For other apprentices who were working with their father, or another relative, their first day on site occurred many years previously when they 'would just pass Dad a nail or a screw'. Here, the commencement of their time as an apprentice was viewed as a natural progression. It seemed to lack the significance as a marker in time that the first day at work might hold for an apprentice working with a boss to whom they were not related.

A number of apprentices recalled their first days as being memorable because they signalled the beginning of the relationship with their host employer. Having a 'bit of a talk' and 'a laugh' were part of this beginning:

> *When I first started working with [my host employer] it was pretty good. They were pretty easy going. They made the day fun, had a bit of a laugh, kept you busy. You knew that you always had to keep working but they were good to have a laugh . . .*

This quote also carries with it the implication that, almost immediately, the unspoken rules of the workplace were conveyed to the apprentice and they were expected to comply with these rules from the outset. Other host employer behaviours included asking 'what do you know', allowing the apprentice time and space just to 'visually take in how their proceedings went' and to 'pick up a little bit here and there'. These were all cited as being significant in the initial stages of developing the host employer/apprentice relationship and easing the transition into the work environment.

Sadly, for some apprentices, the initial contact with their host employer was not a happy one, involving clear messages that the relationship was to be difficult and in some instances quite short-lived:

> *The sub-contractor I was with didn't formally introduce himself or nothing . . . As soon as I got there he said, 'Take all these tools out', so I knew from the start it was not going to be a good working relationship because he treated me like crap from day one.*

The apprentice in this case picked up on the unspoken message that the host employer 'didn't want an apprentice to start with' and was not going to tolerate 'muck-ups'.

These early experiences set the stage for the learning and working relationships which were to develop over time. The significance of these days and the ease (or difficulty) with which the apprentice moved through the transition into the role of learner-worker were themes that were readily and frequently revisited as the apprentices talked about their learning experiences on site. These times were the seed beds of good/unhelpful attitudes, good/poor communication, helpful/unhelpful conflict which, over time, impacted on the ability of the apprentice to learn and to progress in developing the skills, knowledge and attributes required for their chosen trade.

The learning process

The nature of the learning process was a unique experience for each of the apprentices. Careful analysis of the stories of how learning occurred on the job revealed some interesting contrasts for different groups of people. What is particularly clear and significant is that the nature of on-the-job learning changes over the period of the apprenticeship.

Apprentices who have been on the job for less than 12 months spend a lot of time watching and 'figuring things out'. They are more likely to be invited to 'have a go'. This invitation may include the opportunity to practise a skill on scrap pieces of material prior to attempting it in an authentic setting. Learning by having mistakes corrected was emphasised by a number of apprentices. Being shown why things were not correct, and being shown alternative ways of approaching a task, were seen as components of the learning process. How much this was a part of the teaching process depended greatly on the host employer and/or the confidence of the apprentice to ask questions.

Once apprentices had been on the job longer than 12 months, the emphasis in the learning process shifted to one of learning by 'doing it on your own'. Being shown how to do things was still an important part of the learning process, but this demonstration and its accompanying explanation became quicker and could comprise only of 'a few pointers':

> *. . . you just watch them do it, they don't say anything to you, you just try and pick it up from what you can see them doing and you try not to ask too many questions because it gets annoying for them.*

Some apprentices talked about doing a job 'together' with their host employer and then subsequently working on the same task by themselves. In this instance the apprentice would be 'checked'. This process appeared to change over time to one where the apprentice would be 'asked to do the job'. Practice and repetition were seen to be very important components of the learning process. The role of the host

employer in giving positive feedback was highly valued. Having mistakes pointed out and being allowed to correct them was mentioned by several apprentices as a key part of their learning process.

During the second and third year of their apprenticeship, apprentices were beginning to distinguish between learning different types of knowledge. In the following quote, the apprentice talks about the importance of learning the 'why' component:

> *No-one has ever sat down and taught me how to do anything as far as setting out a wall, why you put a stud there, there and there, and why the rafters go there. I think it is just acquired knowledge and I have taken it upon myself to learn because I felt it important.*

This apprentice acknowledged the difficulties associated with this type of learning, particularly where he recently had been moved from host employer to host employer in a short space of time:

> *. . . this is the down side, because like that rapport you need to be with someone for six months and they will start trusting you I suppose in doing these things and taking the time to show you. The contractor, I can understand it from their point of view . . . things are pretty tight at the moment, so they can't spare five minutes, even though it might be better for them in the long run, they can afford to spend five minutes with the apprentice to show them why they put this rafter there.*

In this process of 'learning by doing', the importance of thinking about what they were doing was emphasised by some apprentices, particularly in circumstances where the apprentice is asked to do something that is novel or different. In one instance, the apprentice described how the host employer actively discouraged him from asking for help and emphasised the need for the apprentice to be able to act independently of the host employer:

> *I hadn't set one up before and I said, 'What a job! Do you want to do it for me?'. And he said, 'I don't ever want you to say that again'. He told me off. He said, 'You have to put that door in'. And I said, 'But I haven't ever done one' . . . That got me a bit nervous and I just had to get with it . . . It was more like learning how to deal with something new. As a carpenter you have to do that a lot. I guess that's the same with any trade . . . You might never have done one before but you don't go around saying, 'Oh, I've never done one before, I can't do it'. It's your job, it's part of your job and whether you've done it before or not, it's part of your trade.*

This type of learning appears to be focussing on knowledge about 'how to decide what to do and when' and, in the instance described above, was viewed as critically important by the host employer.

Some apprentices nearing the end of their contract of training (in their third and fourth years) still emphasised the importance of watching and being shown how to do various components of their job, but placed

greater importance on 'taking the information and using it'. Practising skills 'on the next job' and being able to work independently of cues provided by the host employer ('you just remember them in your head') were featured in descriptions of how learning occurs. Learning to recognise mistakes, as distinct from having mistakes pointed out is also a feature of the learning process. Learning focussed on the importance of 'working out your own system':

> *[The host employer] has always used a gun . . . and he would have had time . . . but for me, I had never used one so you have got to learn by your mistakes, but once I worked out a system for it . . . then speed came slowly after that.*

The experience of learning

Just as the process of learning varied widely, so too did the experience of learning. Many apprentices spoke of the experience of learning with a particular host employer in glowing terms, describing how they admired the host employer for the knowledge, skills and experiences which they had to share with the apprentice. However, this admiration was often tempered with caveats and the acknowledgement that the learning process was often coloured by conflict, stress and the need to confront a range of issues that impacted on the relationship between the apprentice and host employer.

For a number of apprentices, the experience of learning was coloured by the conflict inherent in apprenticeships between the dual roles of worker and learner. The pressures of work and the time constraints led to the apprentice feeling as though they were a labourer, with little room for the role of learner. The lack of attention to this role often left apprentices feeling frustrated, relegated to doing repetitive jobs which focussed on 'what they knew'. Apprentices rationalised these circumstances in terms of the need for their learning to be accommodated (and sometimes subordinated) to the work plans of the host employer and their overriding urge to get the job done.

The quality of the relationship between the apprentice, host employers and other tradespeople with whom they worked emerged as a significant factor in determining how the apprentice viewed their experiences of learning. Relationships characterised by humour, open and honest communication, the ability to 'work well' with people, patience, clear expectations, respect, and a 'knowing' which moves beyond a mere passing acquaintance, were all mentioned as making a rich and valuable contribution to learning experiences:

> *The experience of learning [was] excellent. Everything I wanted to know is at my fingertips. I just ask him, pat him on the shoulder and say, 'I've got a problem' . . .*

Conversely the lack of these qualities in relationships between apprentices and host employers resulted in learning experiences which were tainted with power struggles, uneasy truces and the apprentice sometimes dealing with bullying, aggressive behaviour and threats:

> *When I first started, I just had a problem with the way this carpenter was teaching me and he was telling me to do this and do that, don't mess up or you are out of here, so I had a few arguments . . . I wanted to get away from this fellow. I was at the point of just beating the crap out of him.*

While this picture paints an extreme experience, a number of apprentices alluded to their learning being affected by conflict precipitated by their inability to 'work fast enough' without making mistakes, meet the high standards expected by the host employer or cope with the pressures of a particular job. The reality that each host employer has their 'way of doing things' was often cited as a constant source of conflict within the learning situation. The experience of learning necessarily involved the apprentice 'adapting' or complying with the expectations of the host employer. These instances suggest suppressed conflict and the development and maintenance of a hierarchy within the worksite which depends, to a large degree, on the people with the least influence (the apprentices) taking responsibility for maintaining balance and harmony in the relationships:

> *I suppose the biggest conflicts are the way of building things and carrying things out with different bricklayers and builders and things. Everybody wants you to do things their way to a certain extent. You just have to re-organise yourself to suit other people.*

Apprentices related a number of instances where conflict impacted on their work and therefore affected their learning. Personality clashes were frequent. These could occur with a number of different people—host employers, other tradespeople, clients. In nearly all these instances the events left the apprentice feeling uncertain and sometimes angry. Often it was only the passing of time or the parting of company that resolved the issue.

> *I suppose some people have personality clashes, they just don't get along. I think it is important to get along with the person you are working with and through the HIA I had the opportunity to work for several different people, so if that occurs—if there is a personality clash—you have got the opportunity to go and work somewhere else. So I think that is good.*

How mistakes were dealt with was also a common arena for conflict. A number of apprentices expressed the view that their host employer 'did not know how to go about showing you that you've done something wrong'. The resultant 'blast' from the host employer often affected the confidence of the apprentice, leaving them with uncomfortable feelings that neither side found easy to deal with:

At school they encourage you more, whereas here, if you do something wrong, they are going to be on your back all day. They treat you a lot differently. I guess they can hold grudges, everyone holds grudges, but I guess it is difficult to handle. Because I am so young, I am not used to anyone yelling at me a lot, other than a football coach or something, whereas if he will yell at me I have got to put up with that. It is just hard because you are not used to it. It is difficult to try and get on with your work when you know that he is not thinking the best of you.

Another source of conflict arose when apprentices felt that unrealistic expectations had been placed on them. In these cases the role of learner was often ignored by the host employer, placing the apprentice in an 'impossible' position.

. . . the worst thing they could have done to me for a start was to move me away from the gang that I was with, and then to keep moving me around and around all the time to different blokes. That made it difficult, and then after they had done that, to put me from second to first fix, back to second fix, made me do a bit of first fix and then in the end sending me out on my own, saying you should know how to do this, half-way through my third year. One of the jobs I had spent three months on by myself, by hand, no power-tools, I can't see the value of—how can you learn? In the end I cancelled the contract myself because it was pointless continuing . . . If you are by yourself it is just impossible. These blokes, it was getting back to why should we pay him 300 bucks a week to learn . . .

This instance highlights some of the tensions experienced by both host employer and apprentice when learning is taking place in the small business context and how it is sometimes impossible to accommodate both working and learning in a manner that meets the expectations of both parties.

The timing of learning can also be problematic. Apprentices often spoke about not knowing when it was the 'right' time to ask questions, or how to deal with the situation where they were not 'getting it' and the host employer was becoming impatient and increasingly reluctant to elaborate further on what was required. Often in these situations, the apprentice would decide to take the line of least resistance and 'basically shut up and just do it', even if they knew what they were doing was wrong or unhelpful. In these cases, a judgement was made about what was easier to deal with—the 'blast' which might follow the next question, or the grumpiness of the host employer when a mistake needed to be fixed.

You come across situations where you may think you have a better way of doing it or you can't understand or try and ask the boss why he's doing it that way, but he won't tell you. You say to him, 'But I'm just trying to make it easier'. But he says, 'I don't care, I don't want to explain things right now'. So that's what you've got to do. It usually gets done a hundred times the same way. You know the easy way, and what's the

wrong way and what's the right way. He might get you to do it the wrong way, but he's got reasons for it through what he's been told, just for that specific job. You might have to do it in a different format, or things have to be changed around or whatever . . .

These incidents highlight the often 'unseen' and least spoken about side of on-job training that, despite its concealed nature, can have an outwardly visible impact on apprentices' learning.

Learning: Planned or not?

The stories of the learning events recalled by the apprentices were varied and covered a variety of different contexts and focussed on the development of a wide range of trade skills. In a majority of instances apprentices were of the opinion that their learning 'just happened'. Learning occurred naturally as a consequence of the job being undertaken at the time or occurred as part of doing the job. A number of apprentices found it difficult to pinpoint exactly when learning happened, tending to see the process spread over a period of time which allowed for the opportunity to repeat a task several times in order to facilitate their learning.

The process of learning was also linked to the apprentice being able to 'pick up on the routine' of the host employer with whom they were working. This idea carried with it the concept that the learning was embedded in a certain way of working which was unique to each host employer. One of the significant keys to the learning process for apprentices was the development of an understanding of that routine. Learning 'just happens', not exactly by being shown how to do something, but as part of a process where the host employer might, for example, be giving directions. These directions are not exactly what the apprentice has to do. Rather it can be a monologue about the job, describing what needs to happen and how it needs to be tackled. From this, the apprentice gleans the key ideas, combines this with their knowledge of the 'ways of working' developed by the host employer and then proceeds with the task at hand.

I guess as you work, every boss has a different routine about how he goes about working from day to day and after a while you pick up on how his routine is run and you just figure it out . . .

For the majority of apprentices, learning appeared to be something that was undertaken alongside, rather than with, the host employer who was on site with them. A number of different perspectives were, however, offered by a minority. Alternative perspectives viewed learning as a quite deliberate and planned process which was a necessary by-product of the status of the apprentice.

> *Being an apprentice, they go out of their way to show me how to do everything properly the first time and then watch me, and then if I do make a blue half-way through, he'll tell me and talk to me about it and then I'll carry on and see if I can go through and complete it properly. . .*

There were instances where, as part of a job, the host employer would announce that they were going to 'show the apprentice how to . . .'. Descriptions of this type of process were not frequent in apprentices' recollections of their learning. Rather, more apprentices believed that their learning was at least partially planned in that their host employer realised that they needed help and this, in itself, created a learning opportunity. Sometimes these opportunities were created out of necessity (that is, there was no one else around to help except 'the lad') or the type of job necessitated that the apprentice learn a particular skill at that point in time. The host employer as the skilled tradesperson, using their knowledge of the job at hand and their understanding of the apprentices' current level of ability, would plan the job taking these factors into account.

> *. . . just one of the jobs that had to be done and so we did it. Can't say it was planned. I think [the host employer] would have thought at the beginning of the day, this job is going to take a bit longer to do and so would have planned that, because he had to teach me. But other than that, it wouldn't have been planned, I don't think.*

The reality of the planned or unplanned nature of the learning undertaken by apprentices on the job probably lies somewhere between the two extremes of views presented here. From the apprentices' perspective, the degree of planned learning is inextricably linked with the nature of the work encountered in the daily routine of the host employer. Some apprentices believe they learn as a consequence of the work that they undertake, others believe they learn because they are engaged in the process of work. There seems to be an assumption (or a hope?) that the host employer they are working with is aware of their status as 'learners' and takes this into account when planning the day-to-day work routines. Clearly, some host employers do 'flag' their intention to teach their apprentices, but even in these instances, whether a particular job is viewed as a learning event by the apprentice seems to be shaped by a number of factors. These factors include the apprentice's previous experience and the host employer's perception of the apprentice's level of skill at a particular point in time. Other factors are the apprentice's confidence in their skills and knowledge and their ability to 'pick up' what is required from the learning opportunity that presents itself. These factors, which could be present in a myriad of combinations, contributed to a range of circumstances which, in the opinion of the apprentices, either helped or hindered their learning.

The place of assessment on site

In their course of training, all formal assessment of apprentices' competencies was undertaken at TAFE. Apprentices were acutely aware, however, of having their work monitored and checked by the host employers with whom they were working. Sometimes this happened at the end of a job; at other times the apprentice's work was monitored at points along the way. The process for assessing the quality of work was dependent upon the work habits of the host employer and the amount of experience the apprentice had accumulated with the task in question.

> *Well, if it isn't right, he won't leave it there. He'll make me do it again. I suppose you could say he goes around and checks it because, being particular, he likes to have everything right. We hold them there first before we nail them to make sure they're all right. All my work is observed by either my father or John and, if it's not right, is re-done. Normally all our work is held there in place to make sure it's right before it's actually fixed and I have a fairly good idea myself on whether it's acceptable or not.*

Sometimes the process of checking is not an overt one, but the apprentice has the strong suspicion that they are under scrutiny. Apprentices sometimes believed that they had been presented with a particularly difficult situation by their host employer as a form of test.

> *. . . no, I haven't got [name] sitting there with a clip-board and saying, 'Right, off you go' and then mark me out of 10 or anything, but I think in his mind he is always testing people, like testing me. I think every boss is. Putting problems in front of you to see how you work them out and that, but I haven't actually heard [name] say, 'Right, prepare tonight, because tomorrow I am going to test you on how to pitch a roof '—nothing like that.*

There were also instances where silence from the host employer was taken as a cue that the work of the apprentice was being monitored. Silence was taken by apprentices to mean that their work was to the required standard. Communication from the host employer was usually confined to those instances where a mistake had been made or the required standard for the work had not been achieved.

> *. . . if you are doing it right, he lets you know if you are doing anything wrong, so you just continue, keeping going. If he says something, you know you have done something wrong.*

Apprentices also distinguished between different types of checking. Sometimes work was checked for the quality of the finished product. In other instances the process was also monitored. This often led to the apprentices receiving feedback not only about their current performance, but also the sorts of information that would enable them to improve that aspect of their work the next time it was done:

He comes back and has a look at what I've done and says, 'You could have done this bit like that, or you could try it like this next time'.

Some apprentices believed the nature of their work necessarily had assessment built into it. They talked about being able to 'see' that a job was correct because the pieces of timber fitted together. This mitigated the need for other people to be available to check work as it was undertaken:

Most of the time you can pretty much assess your own ability, you have just got to make sure there are no gaps in the joins or something like that. If there is a gap, then you know you haven't done it properly; if there are gaps you go back and cut it again and do it again. I pretty much assess my own ability more than he assesses it. I think I know what is right and what is wrong.

The importance of being able to assess or check their own work was underscored by one apprentice who pointed out the importance of this process to developing 'their reputation' and professional judgement, which is an integral part of the skill and attributes of a professional tradesperson:

. . . he tends to make you think for yourself and I think people acknowledge that. Therefore, they get you to check your own work and that's what's happened with me because they know I can think through it and check it myself. They say, 'Look, you check it yourself and if you think it's good enough, then that's good enough'.

More experienced apprentices believed they did not need to be checked very often or very thoroughly by their host employer. They attributed this to the confidence and trust that had been built up over time. One said, 'No, the boss has got confidence. I know what I'm doing. He might just run by and check just to make sure'.

There were a number of apprentices, however, who expressed disappointment in the lack of assessment of their work, from both the host employer they were working with and the HIA as their employer. Logbooks had been distributed as a means of tracking the on-site development of apprentices' skills. These had, from the reports of a majority of apprentices, received scant attention from both the host employer and the HIA:

Not at all . . . when I first started my apprenticeship, we got a green logbook of all the different areas in carpentry, all the first, second fix and just a lot of different stuff. It's meant to be in my car but it's at home somewhere, I'm not sure, but I haven't been checked on that at all. We're meant to be . . . the sub-contractors don't really bother about it and we don't bother about it. You don't get checked.

These attitudes were further reinforced by other comments where apprentices suggested that their host employer was too busy running his business to take care of assessment and the completion of the logbook.

What helps apprentices learn on the job?

From the distillation of all their experiences as learners, apprentices were able to provide a range of ideas on what helps them to learn. Their responses can be divided broadly into five categories.

1 Previous knowledge and experience. This could relate to learning that had taken place at school, at TAFE or prior experience of the task in the workplace.

2 Opportunity to practise the skills or task. Doing a task continuously assisted apprentices to increase their proficiency. Practice to the point of automation was seen as something to be valued and therefore very helpful to the learning process, not the least because it had an immediate and tangible benefit to the worksite. As one acknowledged, 'It makes it go a bit quicker so if you get the job finished quicker, everyone's happy. It just makes it easier not always having to look'. Opportunities to practise in different contexts or 'doing it by myself on the next job' was a useful way of building apprentices' confidence. This confidence building was seen as an integral part of the learning process as it reinforced that they 'knew how to do it'.

3 Opportunity to observe and listen, and permission to make mistakes.

4 The personal orientation of the apprentice. Attributes such as curiosity, wanting to learn, a willingness to use one's own initiative, persistence, an ability to concentrate and 'pay attention to the host employer' and commonsense were viewed as important traits by apprentices. Several acknowledged that there were times when 'they weren't going to be told by anyone' and the ability to be able to learn alone (that is, be a self-directed learner) was an important attribute to develop. Being able to communicate effectively with a host employer was also viewed as very helpful to the learning process.

5 The orientation of the host employer. Many comments from apprentices reflected the types of host-employer behaviours that facilitated their learning. These included the host employer:

- showing the apprentice and giving details as they proceeded with the demonstration
- explaining 'why' things were done in addition to describing the 'how'
- displaying a friendly and approachable manner and being prepared to provide 'a pat on the back' as positive reinforcement
- not putting unreasonable time limits on a task and allowing sufficient time for the apprentice to adjust to the task or situation, particularly when learning something for the first time

- providing tips and hints to the apprentice as they performed the task under supervision or on their own
- being prepared to try a number of different methods to facilitate the apprentice's understanding of a task or skill (for example, explaining it, then showing it, followed by an alternative explanation)
- allowing the apprentice to observe the task or skill on more than one occasion

What hinders learning on the job?

While many apprentices were able to identify what helped them to learn, only about one third could articulate ideas or circumstances which they considered acted as hindrances to their learning. Three main themes emerged from the responses:

- approach of the host employers and the manner in which they interacted with the apprentices
- the structure of work
- contextual factors

Host employers who told rather than showed apprentices how to approach a task were seen as presenting barriers to learning. This circumstance was exacerbated when the communication skills of the host employer were perceived to be poor. Outdated knowledge (often rationalised by the apprentice as the host employer being 'of a different generation') or training in methods which were not consistent with previous learning undertaken by the apprentices also presented difficulties.

Host employers' reactions ('going off'), particularly when mistakes were made, were mentioned by a number of apprentices as hindering their learning:

> *. . . when you do make a mistake and he tends to go off his tree a bit, that doesn't help you learn. It puts you down more, you can't get on to things well; a lot of encouragement is helpful, not when you get put down a lot – that is no good.*

> *It wasn't helpful from the yelling, because you can't really focus a lot when he's yelling. You are wishing something else, like I wish something bad would happen to him or something like that, so you can't really think about doing what he is saying because he is getting very annoyed.*

Host employers' unrealistic (in the eyes of the apprentice) expectations also hindered learning. Being expected to be able to undertake a task after having been shown only once, or an expectation which did not

match the apprentice's perception of their ability, also appeared to impact on the quality of learning:

> *The sub-contractor I started with was good . . . but he was sort of trying to prepare me more for when I finished my apprenticeship, so he was getting me to work faster and do everything, but at that point in time you're not really prepared to do it like that yet.*

Some apprentices reported being 'rushed' by their host employers. This was not particularly helpful when a task needed to be re-done.

> *Probably the biggest thing was rushing. To get down and re-do it, you didn't have a lot of time to rethink things through.*

Perhaps the most unhelpful aspect which was mentioned most frequently by apprentices was the notion of 'unlearning', brought about by working with different host employers who had different ideas about how a task should be approached and carried out. The following quote captures the sentiments of many apprentices, for whom coming to terms with 'unlearning' was a critical part of their learning process:

> *I think the only problem I had was when I went to different guys, everyone had a different way of doing things . . . The first guy I was with for two and a half years so I learnt a lot of the way he did things. Then I got sent off with other people and you'd have to try and forget it all, so that was the hardest part.*

It should be noted that this process of 'unlearning' was not always seen as unhelpful. In some instances it was seen by apprentices as an opportunity to learn a quicker or better method, or to broaden their range of skills or knowledge. The problematic nature of the process seemed to be a product of the number of moves an apprentice was asked to make or if a move was the result of a termination of contract with a host employer. The nature of the relationship between host employer and apprentice was a very important factor in determining whether the process of learning was viewed in a positive manner by the apprentice.

The structure of work was seen to impact negatively on apprentices' learning in two ways. Firstly, a lack of variety in the type of work offered could contribute to 'missed opportunities'. In the following quote, the apprentice attributed this to his status as a first year apprentice:

> *. . . if you are just a nail hand and you have got jobs to do, like nailing frames constantly together or something like that, then you don't even get a chance to see what is going on and you don't get a chance to actually do it because they are doing it. That is hard for first year . . . That is why the apprenticeship is four years I guess, because if they could show you all in less time, you would pick it up, but you just don't get to see it.*

Secondly, the occasion when a new skill is first introduced to an apprentice was also seen as a time when learning was not at its optimum.

Nerves, as well as a sense of being overwhelmed in a new and strange circumstance, appear to hinder learning.

A number of contextual factors were also cited as inhibiters. These included extremes of weather, commitments outside of work (family, social), defective tools and unexpected events which caused frustration for host employers and subsequently affected the manner in which they related to apprentices.

Conclusion

Learning on the job is a complex process which appears to prompt both the apprentice and host employer to move into somewhat unchartered waters. At times learning appears to occur naturally, blending with the flow of work in an uncomplicated stream. At other times, the process of learning could be likened to a battle, where both apprentice and host employer can become immersed in conflicts. Learning emerges from these circumstances more through good fortune than through any planned or deliberate actions from either party. There are also many times where learning just doesn't happen. The role of the apprentice as worker assumes greater importance and work is structured to meet the needs of the business and the host employer.

But throughout all these incidents, the apprentice continues to move towards the goal of becoming a tradesperson. Part of this process entails more formal learning undertaken at a TAFE institute. The next chapter examines the apprentices' experiences of learning in this off-site environment.

8 The off-the-job experience of the apprentices

The experience of participating in an off-job learning environment—in this case a TAFE institute—offers apprentices the chance to learn in an environment that is quite different from that experienced on the building site. In contrast to the workplace's dual demands of 'learner' and 'worker', at TAFE the apprentice is placed in the role of 'student'. In this role the apprentice is required to act and think in ways that often are in direct contrast to those that are expected (and demanded) in the workplace.

This chapter analyses and interprets apprentices' experiences of the off-job learning environment which is constructed by the TAFE teachers (and which has been depicted in chapter 6). It examines their experiences of going to TAFE, the types of learning, the learning processes and their reactions to learning with TAFE teachers.

The experience of going to TAFE

As with the experience of on-site learning, the apprentices' responses to questions about their off-job training at TAFE resulted in a wide range of opinions. How they viewed TAFE was greatly affected by the amount of time the apprentice had spent there. More experienced apprentices tended to offer harsher and more pointed criticism, whilst those in the early stages of their time offered more tentative appraisals of their experiences. Many qualified their first impressions with statements which suggested that they expected (and hoped) their views would change over time as 'it gets more interesting as we go' or 'it should be better next year when . . .'

Almost one third of the apprentices described their experience of learning at TAFE as 'boring' and 'tedious'. Apprentices offered a range of opinions on why they couched their experiences in this light. For some, they perceived what they were being asked to learn as 'trivial' and 'not relevant' to what they were being asked to do in the workplace. This was particularly an issue during the early stages of the off-job training where modules concentrated on using hand tools, a topic which did not appear to interest many of the apprentices:

It can be boring. Well, I've only just finished first year and a lot of that was trivial stuff like learning the different parts of a plane, which is not all that interesting.

Boredom was also attributed to the fact that some apprentices felt they had already learned the topics being offered, either on site or in previous study at TAFE or high school. As a consequence, learning was perceived as merely a repetitive process, albeit one that sometimes did offer some welcome new insights:

I found it a bit boring, but a lot you learn on site already and you just repetitively learn stuff, but you do pick up some things that you haven't learnt on site, at TAFE.

It is pretty boring actually, it is mostly what I did last year in Year 12. I have done most of it before, so it gets boring.

For a significant number of apprentices, the experience of learning off job was viewed as problematic because much of the information being offered to them was out of date, or practices taught there were far removed from the processes required onsite. These factors contributed to the view that 'you seem to learn more on site that you do at TAFE':

Pretty boring . . . I don't think too much of the way that they teach at TAFE. They are just too far back in the old ages.

It is just very repetitive, you do a lot of what seems meaningless tasks that don't seem to achieve much. It depends on the lecturers as well, like if you get lecturers like we have got some lecturers that are 50–60 years old, haven't been on a job site since 1960 or something and then, whenever they are talking, they return back to the days when they used to do it. Like 'back in the 60s we used to do it like this,' and I said, 'Mate, I don't even care about the 60s, we are in the 90s now'.

For one apprentice, going to TAFE was faced with a resignation which was expressed in the following, rather 'colourful' way: 'Well, I have to do it to become a tradesperson . . . If you have to shovel manure, well no-one likes doing that, but if you have to do it, well just do it'.

From these responses it would appear that some apprentices struggle to see the relevance of some of the learning they are asked to undertake off the job. Previous learning, the lack of direct relevance to their day-to-day experiences, combined with the compulsion to attend TAFE as part of their contract of training, all combine to create a set of circumstances which, from the apprentices' perspective, are not conducive to viewing learning at TAFE in a favourable light.

However, learning 'old ways' was not always viewed negatively. For some apprentices, 'old ways' equated with learning the 'right' methods. In this respect, TAFE was able to offer apprentices the opportunity to learn things that might be overlooked or modified on site to take into

account the pressures of running a business and the need to get the job done effectively and efficiently:

> *The ways that they teach us are the old methods, so in a way it's good that they're teaching the old methods because that's the right way and the methods that carpenters use now are just a faster way of doing things.*

In the opinion of a few apprentices, the slower pace and the apparent lack of direct relevance to their day-to-day work was beneficial because it allowed them to build attributes such as accuracy. TAFE offered a valuable 'back up' to the on-site experiences, and the opportunity for apprentices to broaden their knowledge and skills by offering variations to what might have been experienced on site with their host employer:

> *It's all right but the class I'm in, joinery and carpentry, a lot of the stuff they're doing is towards the joinery side. I'll benefit from it. It still helps out because it teaches you to be dead accurate with all your joins, cuts and measurements.*

> *TAFE gives you a few ideas about the different sorts of roofs, not the same sort of ones that you're going to come across on site while you are working.*

Significantly, a number of apprentices viewed the experience of learning off the job in a positive light because it offered 'a holiday' from work. TAFE offers a more regulated environment where the work is 'softer' and less demanding and there is escape from the extremes of climate experienced on site:

> *A holiday. You look forward to TAFE because you start later, you get a smoko, you get lunch, you get another afternoon smoko. Working with [the host employer] we have lunch and that's it. When you're at TAFE you get there in the morning, you probably lose about half an hour when everyone's sort of not in the mood to work and then you might have an hour's work and then the next half an hour everyone's getting prepared for smoko. Then after that you do a little bit of work and then you've got lunch. A little bit more work and then you've got smoko, so it's always broken up. You only do a couple of hours work and it's not really ever solid work.*

> *A bit different, a bit more relaxing than work. A bit of relief going back there sometimes. Especially when it is hot or cold or raining. When I went back it was raining for two weeks, so it was quite good there.*

The off-job environment was also notable for the slower pace of work. This was particularly welcomed by those respondents who had not been apprentices for long. For this group, TAFE offered a welcome return to familiar territory and the role of 'student':

> *It is probably a holiday in a way. You are relaxed, you are not doing much, just sitting down. Whereas at work you are running around, always moving, always think, think, think, and everything is really quick, but at TAFE we really slow right down.*

I find it quite good actually because it gives you a break from being out on the work site, especially for me because just coming out of school it gives me a break to just go back to studying and stuff . . .

An alternative view was expressed by one of the most experienced apprentices in the group. In his eyes, the 'holiday' mentality seemed to heighten his frustration with the experience:

That is the way it seems. They start at 9, then there is a morning smoko and that drags on for a half an hour, and they sit in the classroom while the lecturer gets their act together and there is so much wasted time. It is really pathetic. They could fit one week into one day—what they really teach they could fit into one day.

Going to TAFE also provided a welcome opportunity to mix and socialise with other apprentices, to share experiences and to learn something new:

You meet a lot of people there, a lot of young apprentices there, people your own age, younger or older. You find out what they do, where they've been and what they've done. You compare experiences and get advice from them, because a lot of the time these apprentices can tell you things that they've learnt that your boss might not tell you.

For a number of apprentices, the experience of learning off the job was coloured by the recognition that they were being placed in an environment where they were being asked to engage in learning which they felt was difficult for them:

I am not one for theory work, so I don't really like it much. Too much written work and reading to do. Practical side I pass on, but theory I have to sit back and think.

Reports of mixed feelings about the experience of going to the off-job learning environment were further coloured by the apprentices' views about what they believed they actually learnt there.

What they learn off the job

The majority of apprentices were able to recall significant learning events at TAFE. The lists generated often mentioned subjects as well as skills. Topics such as learning how to use different tools, types of timber, the timber code, safety, occupational health and safety and drawing plans were viewed as significant learning that could be attributed to attendance at off-job classes:

So far, I've learnt a lot about how to use different tools, the different parts of tools, looking after, sharpening, cleaning tools. I've learnt a lot on safety, safety around the job site. I think we did a section on power tools, how to use them correctly, again safety precautions that you have to take. Starting this year, we've just started to learn all the different parts of a frame, all the different terms they use, the spacing of studs, etc.

I learnt the most in my first year and that was about the different types and species of timber and how timber is processed and those things and how timber is joined, different types of joints in timber and a lot of those things that we never use on site.

You have got a saw stool and you have to do a take off, name the parts, cost them and sort of give a quote—I learnt that. I learnt parts of the tree that they get all the timber out of. I learnt to identify different timbers and just basically what is required really.

In one instance, a hint of learning some of the generic or key competencies was given by one apprentice:

First-aid. I've learnt how to draw a plan, how to set it out, how to write it, how to sub-title the sizes, and things like that. They looked at our communication, spelling, mathematical abilities and our practical working.

When describing their experiences off the job, a number of apprentices qualified their learning, using adjectives such as the word 'small', intimating that TAFE seemed to be providing a supplement or contrast to the learning which has taken place on site. Other words used to qualify their learning included 'basic' and 'simple'. One rather disgruntled apprentice commented, 'In the first year you do the basic stuff which everyone probably knows already'.

The theme of 'learning the basics', particularly in the first year of TAFE, was viewed in both positive and negative ways by the apprentices. In some instances the 'basics' equated with being bored at TAFE and even resenting the requirement to attend classes:

The first year is a waste of time, that is what I think anyway, they should just forget first year because it is just crap. You don't get to use power-tools, you have got to do everything by hand. They go over safety and everything that is just so obvious to you that it bores you and having that as your first block of TAFE and that, actually makes you resent being at TAFE. I didn't like TAFE at all in my first year, I thought it was a load of crap. I didn't want to be there, but as you get into it more, it gets more interesting . . .

'Basics' was sometimes used as an alternative way of saying that the learning focussed on the types of knowledge and skills that are intuitive to the experienced tradesperson, and therefore often assumed to be known by all on site. TAFE was valuable because it offered the opportunity to learn the 'commonsense' knowledge which can assist the apprentice on the worksite:

Virtually, you learn the basics. The things that carpenters have forgotten because they know it naturally and they just go ahead and do it and expect everybody else to just know it. You learn those sorts of things, like planing with the grain, not against it.

> *. . . things like that which may help out, because carpenters take that as common knowledge and everyone should know it. They just expect everyone to know it because they've been doing it for millions of years and they just don't think about it. So in trade school you learn things like that.*

In two instances, apprentices were able to elaborate on the notion of 'learning small things', stating that these small things are often the types of learning that you 'sort of forget' or 'keep in the back of your mind'. They become latent knowledge, stored for the future. These comments suggest that some of the learning that takes place at TAFE may not be directly applicable to the apprentices' immediate work situation. Rather, it comprises broader or more specialised knowledge and skills which will be utilised at some time in the future or only when a particular set of circumstances arises:

> *There's small things that you pick up. You sort of forget them until you really need to use them, and then you think, 'Oh, I know how to do that'. So you just put that into practice.*

> *Things I have learnt at TAFE are, like a couple of things I did learn more-so than out here were . . . drawing up plans and basically stuff that you never do out here. It is more-so stuff that you learn there and probably just have to keep in the back of your mind if you ever need to actually draw a plan.*

For some apprentices TAFE provided an opportunity to learn 'more in depth', in a manner that was not possible out on the work site. One apprentice recognised that he learnt 'the more in-depth types of things, where the boss at work doesn't have much time to teach you things'.

TAFE is also the site for learning things that are not taught on site. TAFE is valued for the new ideas that apprentices are exposed to as well as the opportunity to develop skills that are related but not identical to those learnt on site:

> *. . . and you actually learn things and you get the opportunity to learn things that sometimes you are not taught out there on site—like theories and the geometry of a roof, how it is all triangles, how to measure them all up. You can measure things off on a plan that you didn't really know existed. It is interesting like that.*

> *I have learnt quite a lot of different things, because you don't just do first-fix carpentry, you do a bit of stair making, second fix and hanging doors and stuff like that, so they teach you a bit of everything and they sort of briefly, you only do a week every so often, so in a week you might get shown how to put up a roof or something, and in another week you might get how to build a staircase and stuff like that, so you learn lots of different things.*

The off-job environment allows apprentices to learn things 'by the book', that is, to learn methods that are not dependent on the vagaries of the workplace or adapted to accommodate the particular habits or biases of the host employer on site. Often the 'book' method was equated with the

'long' or the 'slow way', suggesting that the learning at TAFE was focussed on methods or ideas which would be adapted or discarded in the workplace due to the time constraints and the need to work quickly and efficiently. One mentioned 'the trigonometry which they really didn't go a lot into and the book method, which they really pushed, that is the thing that sticks out', while another claimed that 'they sort of teach you a long way, they show you how to do it'.

Some apprentices were quite open in admitting that they had learnt very little at TAFE, although these comments were in the minority. The reasons for this occurrence were focussed around a number of common ideas. One apprentice explained that he had not learnt anything at TAFE because of his initiative in acting as an independent learner:

> *. . . I haven't learnt anything because I suppose in a lot of ways I have taken it upon myself to acquire that knowledge and then I will sit through TAFE and I have already learnt it.*

For another apprentice, the lack of learning was attributed to out-of-date material, a fact that was confirmed by the TAFE staff!

> *A lot of the stuff you do learn, all the module groups and stuff are all 1970 and stuff and all the things are out-dated, and as you're going through the book, the lecturers will say, 'Don't worry about this because you don't do this any more, or we don't worry about that because it's wrong'.*

Another apprentice made the distinction between learning and 'doing', claiming that the latter process often inhibited the former. In this instance the apprentice cast himself as the passive recipient of directions from a TAFE teacher:

> *We do like a machining module—they have different modules you do, like a roof module, wall-frame module and that sort of stuff. You don't actually get to do it, but the teacher will just say measure 600 and so you measure 600, like you just do what he says, so you are not really learning it as such, you are just doing as he says.*

There was also a view expressed by a minority of apprentices that their learning on site actually served to mitigate against opportunities to learn off the job. This view was based on the assumption that the workplace was able to offer the apprentice opportunities to learn all they needed to know. Specific topics or skills were not 'learnt' per se. Rather, the experiences off the job provided opportunities to 'go over' or revise areas, and this was not viewed in the same light as learning something new or novel. As one responded, 'not too much, not since I have been on site. I have basically learnt nothing at TAFE because they just go over stuff that you already know sort of thing'.

Having explored apprentices' views on 'what' is learned off the job at TAFE and opinions on the usefulness (or otherwise) of this learning, attention is now turned to the 'how' of the learning process.

The learning process

Examination of apprentices' responses to the question of 'how did the learning at TAFE happen?' reveals that they had been given the opportunity to undertake learning in a variety of settings, using a number of different learning strategies.

The most common recollection of 'how' learning took place revolved around the use of direct instruction methods by the TAFE teacher. In these instances, the learning environment was strongly teacher-centred and, from the tone of apprentices' responses, tightly controlled and regulated by interventions from the teachers. One apprentice graphically elaborated on the learning process by listing off the following sequence of events!

> *. . . you start off in the classroom and the teacher stands up the front and gives you heaps of jargon. You listen to about half of it. You get given module books and you just go through and fill out all the questions and that and you have discussions on questions and stuff as you are going through, write out what you want to know . . . Then you do a bit of practical on certain things, depending on what module you are doing as to what kind of practical you do, and then you are out in the actual workshop or stuff like that with the lecturer and he explains the method that he wants you to do and then you go and do it . . . and then you have got to show your competency at doing, for example, pitching a roof or stuff like that, whatever the practical test may be, practical work. You then get marked on that practical work, you have got to show the competency in it. You go there on Friday, you go to class in the morning and you say, 'Right, give us the test straight up,' so you get the test out the way in the morning. They say it takes about an hour and a half but you usually do it in about 20 minutes, and then you go to smoko, and after smoko you go out and have your practical test and you try and get that out the way as quick as you can, and then you ring up [the HIA trainer], 'Can I go home?' and then you go home . . .*

Explanations of this type of learning process were predominant in the apprentices' responses. Variations such as the use of guest speakers, field trips, team-teaching approaches which allowed the apprentices to observe contrasting approaches to different tasks, researching topics in the library and group projects were also mentioned in some descriptions.

There were also frequent references made to the use of text books and/or modules. Text books and modules were either used by the teachers as part of their lectures or discussions with the class or they were used by the apprentices who then learnt independently and with minimum intervention from the teacher:

> *Text book, I suppose. The teacher stood up out the front and said, 'This is meranti and it is used here, here, here and its properties are this, this, this and then this is pine', and I suppose that is how I learnt it basically.*

Marking out wall frames. Basically we were given a module book on wall frames. The lecturer went through what wall frames were about, through the module book and we were asked questions—if we understood what he'd just told us. Then we went through it in a practical. We went outside and nailed up wall frames and put them together.

Say hand-saws, basically just in the classroom really. We have got a booklet, modules that you fill out, the lecturer also teaches us, but usually we have to go and look for the information ourselves—find it and write it down, then either he goes over it with us, or with the whole class, and basically that is how you learn it.

Learning strategies that involved repetition, the opportunity to work on problems independently and learning by doing in a simulated work environment, when mentioned by apprentices, seemed to be viewed as valuable and worthwhile learning experiences. This stands in contrast to the more book-orientated, classroom-based approaches which were far removed from their notions of learning which had been shaped by their experiences in the workplace.

The place of teacher feedback was also a prominent theme in the learning processes described by the apprentices. Sometimes this was direct feedback from the teacher. In other circumstances the feedback came in the form of the activity 'not working out' and the apprentice being encouraged to 'figure it out':

He went through all the steps first and we just watched it, and then he walked around between us and, if you followed one of the things wrongly, he'd have a talk to you and get you to do it properly.

With the simple woodworking it was just trial and error. That was the same with the building of different types of roofs because they had miniature frames and we actually had to make the roofs ourselves, so if you got it wrong, you had to sit down and figure out how to make it right.

In the extensive responses about how the learning process was experienced, there was only one reference made to the process involving opportunity for the apprentice to draw on prior experiences in the workplace. In the following response, the apprentice reflects on how the learning process was shaped to take account of this prior knowledge:

What they basically did was showed us what it was, and had a yak and found out what we knew first, and we were going through our books as well. They found out what we knew in there and then they basically had a routine that they went through, that everybody would know about. Then after that, they'd say, 'Well, this is for that, does anybody know anything about it?'. Somebody might say, 'Oh yeah, I've heard a bit'. If not, they'll go into depth about it, but if heaps of people know about it, they'll just skip over it.

The experience of learning with the TAFE teachers

The TAFE teacher played a significant part in determining how the apprentices viewed their learning experiences away from their workplace. There were many comments about the teachers describing them as 'nice', 'good, 'helpful' and 'friendly'. Other apprentices reflected on the willingness of teachers to treat them as adults:

> *. . . our teachers are pretty good actually, you muck around and they don't treat you like a child or anything, and they will understand if you have got something to add, and usually they will give you a fair go . . .*

Another apprentice acknowledged the patience shown by the teacher towards some fellow students who 'drove me insane'. Another acknowledged the ability to be able 'to get along' with the teachers without any of the rows that often were characteristic of some relationships between apprentices and host employers out on site.

But an equally strong theme to emerge from apprentices' responses was the issue of the currency of the knowledge and skills that the TAFE teachers were offering their students. For many apprentices this was a constant source of frustration, not only at TAFE, but also when the apprentices returned to work and contemplated how to apply their off-site learning:

> *A lot of them, they're nice, they're cool people, you can have a chat with them, but most of them have been out of the building game for so long that they don't really know much of what they're talking about any more. They're out of contact with what you do on the site. There's not really much point in showing you how to do something when you're not really ever going to do it again in your life. All the methods they show you, you never really do. You think of it and then you think, 'No, that's just stupid'.*

One apprentice drew a contrast between these tenured teachers and the short-term and contract staff at TAFE, likening them more to the host employer he works with on site:

> *. . . you have got like your, what you call your HPIs who are hourly paid instructors and then you have got your contract people that are on six-month contracts or twelve-month contract lecturers, those people—HPIs and contract workers—are usually people like [the host employer] or that kind of people that have been in industry in the past five years or so and have a pretty good idea of what is going on outside of TAFE, and then you have got the other guys who have been there for 20 years . . . they are the lecturers that get up your nose, because they don't know what they are talking about, yet they profess to know what they are talking about. Some of them are all right, some of them have got some kind of idea because they go out and they learn, they go out to industry and they talk to people, they mingle with industry . . .*

It is very clear that the apprentices valued the experiences that their teachers had to offer them, but only in-so-far as they were perceived to be relevant, up-to-date and able to contribute in a real and meaningful way to their ability to perform effectively back in the workplace.

Another group of responses reflected that apprentices also valued their learning experiences when they were constructed in a climate where the teacher was able to display an empathy with the apprentices' situation in life. This not only related to understanding the difficulty that apprentices may have in translating learning from the TAFE environment to the worksite. It extended also to the teachers displaying a respectful and understanding attitude to the life circumstances of the apprentices themselves:

> *I think they might need to be updated a bit . . . they go by the book, the Australian Standard Code Book. That is good, they know the right standards, but sometimes there are difficulties with what the book says when you are out on site. There might be something that you just can't do, but when you try and say that to them, they can't really understand that and you just get frustrated.*

> *To be honest I found that most of the lecturers were pretty good blokes, and they knew what they were talking about, but to relate to people of my age level that were there was I suppose hard for them because they were older and we were younger. Yeah, and I had a few problems while I was at TAFE in my personal life, and I suppose that affected my attitude towards learning and things. Most of them were fairly understanding but then some of them weren't understanding at all . . .*

The apprentices' experiences of learning at TAFE were also coloured by their perceptions of the motivation of the teachers. A small number of apprentices suspected that the staff didn't really want to engage with their students and this translated into learning experiences that lacked interest:

> *They seem all right, but they don't really make any effort to try and make it interesting; it's very boring for a lot of the work that we do.*

Some apprentices, whilst obviously concerned about matters such as the lack of interest from teachers, were able and prepared to see both sides of the issue. They acknowledged the difficult situation and the lack of power that the teachers have in relation to changing the system. They also hinted that perhaps the teachers lacked opportunities to develop certain skills, for example, being able to communicate effectively with apprentices:

> *Generally, out of touch with, I suppose, our generation and modern building technology. Obviously there are exceptions and there are a lot that are very intelligent and up to date, but then the way that they come over isn't very efficient in that they are not communicating on a level which would be effective for our generation.*

> *The lecturers are quite good, they are just doing their job and they catch quite a bit of crap, like from students and other teachers and stuff like that. You can tell they get a bit stressed out, but they are only teaching what they are told they have to teach. I guess they are all pawns in a game really. You say to them that you want to learn something that is worthwhile and they can't do anything about it really.*

One apprentice rationalised the use of 'old ways' by teachers and the opportunity to learn 'different ways'. However, it is interesting to note the tinge of regret that underpins the following quote alluding to the inability or unwillingness of the TAFE teacher to take up and acknowledge the apprentice's existing skills and knowledge:

> *Some were pretty good, some knew a lot. Some of the younger ones knew a lot of the current things but some of the old ones were just stuck in their ways a bit. You'd tell them stuff you'd learnt and sometimes they didn't want to know. They just wanted to do it the way the book said and whether you used it or not they didn't really care, just as long as you got it right for them as the book says. I think it was just showing you different ways.*

Conclusion

The TAFE institute as an off-job learning environment offers many significant contrasts to the more familiar learning environment of the workplace. The evidence in this chapter shows that, through the perspectives of the apprentices, the usefulness of TAFE is really 'in the eye of the beholder'. It is apparent, however, that the learning at TAFE does sit in stark contrast to the learning that takes place on the worksite. Not only are the topics sometimes more theoretical or less relevant, the nature of the learning environment and the demands it places on the apprentice are quite different. Some similarities between the two learning environments are also evident. Both require the apprentice to deal with less than perfect worlds, sometimes replete with contradictions and coloured with conflict created by different perceptions, personalities and performance requirements.

The issue of the relevance (or lack of relevance) of one learning environment to the other reflects the broader tension between the development of specific vocational skills applicable to the immediate context and the general training which provides a foundation for future learning and circumstances that have not yet been experienced. It also raises the question of how much should the off-job environment be constructed to approximate conditions experienced by apprentices on site with their host employers. For some apprentices this seems to be something that is clearly expected, but for the majority, a guarded 'yes' is the more realistic response. It is clear that the 'less than real' environment

of TAFE makes a valuable contribution to apprentices' learning. The slower pace of activities, the opportunity for the consolidation and review of skills learnt on site, potential new insights, the broadened skill base and the chance to interact with other apprentices in similar circumstances are all characteristics of the TAFE environment which are valued by apprentices as making a useful contribution to their learning.

Another contribution of the TAFE learning environment is the opportunity to make 'uncommon commonsense' transparent and visible. It enables apprentices to move beyond the surface, easily observed components of the skills they are learning on site. It enables them to appreciate and understand complexities in their work by providing the links between the component parts of tasks or skills. In making the hidden transparent, the off-job environment offers apprentices the opportunity to develop a richer and more transferable skills base.

The extent to which this richer and more transferable skills base is actually developed, however, is highly dependent on how apprentices manage the task of integrating the learning from both sites. It is this fundamentally significant issue that is addressed in the following chapter.

9 Integrating the experiences

One of the key features of apprenticeship is the manner in which individuals are exposed to a number of different learning environments. In the case of the apprentices in this study, the worksite and the TAFE institute are the two primary learning environments. As they move from one to another, apprentices are required to adjust to the demands of the workplace and TAFE, juggling the roles of apprentice-worker and student. They are constantly being challenged to use and make sense of the learning they undertake in each environment—they are constantly involved in the process of integrating their learning. Irrespective of any activities planned by the industry association, host employers or TAFE teachers, it is ultimately the apprentice who is challenged to make sense of their own learning. The process of integration from the perspective of the apprentice is explored in this chapter.

As a precursor to exploring the process of integration, differences between the on and off-job sites as perceived by the apprentices are summarised briefly. The twin notions of contribution and complementarity are then analysed by drawing on apprentices' perceptions of how they can be applied in their experiences. Finally, the processes used by apprentices in attempting to make sense of their learning are examined.

How is learning on the job different from learning off the job?

The apprentices articulated a number of interesting differences in the way in which learning occurs and is perceived to occur in the two environments. These differences are presented as a series of contrasts, as distinct from dichotomies, in figure 2.

These contrasts indicate essential differences in the learning environments of the two sites. Learning on the job is perceived to be more real life, contextualised and relevant, concerned primarily with the 'how'. It is efficient though not necessarily correct, more observational and manipulative, more immediate, more time pressured, more just in time and improvised, and more incidental and one to one in nature. On the other hand, learning off the job is perceived to be more theoretical and by the book, concerned primarily with the 'why'. It is less up to date in method and equipment, more explanatory, detached, less time pressured, more detailed and deliberate, broader in scope and more group oriented and paced in nature.

Figure 2: Differences between learning on the job and off the job

Learning on the job	Learning off the job
• perceived as more practical and meaningful	• perceived to be theoretical, more 'why' focussed and (according to some apprentices) more trivial
• learning is combined with the pressure to perform within time limits	• no pressure or at least pressure is not as evident, no time limits
• learning is combined with a requirement to work as quickly and efficiently as possible	• the learning process allows time to think and more opportunities to ask questions
• learning is seeing what actually happens and how it fits together	• learning focusses on explanations; apprentices don't actually see it
• lack of incentive to show apprentices how to do a task properly due to time pressures and the need to earn money	• more detail is given, and the pace of learning is slower
• learning comes from workplace mentors 'passing on' what they know	• learning comes from providers 'teaching' more formally
• need to improvise and use own judgement; environment can be unpredictable; need to take into account factors such as working high off the ground, or the weather	• more 'perfect' environment; everything is set out in the workbooks, environment emphasises safety
• the process of learning to put things into practice allows apprentices to learn lots of ways that are more effective and efficient, but not necessarily correct	• learning is 'done by the book'; provides an opportunity to pick up on details that might have been missed
• apprentices have something to show for the learning at the end of the day	• gives apprentices a break from the job and allows time to meet new people
• more opportunities to use the latest equipment and up-to-date methods	• equipment can be old and no longer used on-site, methods can be outdated
• 'you watch and then do it'	• 'they talk and you listen'
• learning is more individual and involves learning from mistakes	• learning is more group oriented and collaborative
• apprentices learn what is relevant and can use it immediately; apprentices learn because they have to	• apprentices learn because 'you might need it one day'

The differences inevitably spring from a difference in emphasis of intent and vision. They are to some extent complementary, and to some extent in conflict. The common goal is to produce a competent tradesperson. But the primary concern of the small business is to train for the economic survival of that enterprise, while the primary concern of the provider is to train for the benefit of the industry as a whole. There is therefore an inherent tension in purpose. To what degree they can be complementary is a moot point.

The notion of contribution

How does on-job learning help apprentices at TAFE?

Apprentices reported that their on-job learning helped them in a number of significant ways when they went to TAFE. By far the greatest asset from the job-site was the actual experience of working. The themes of constantly drawing on accumulated experience, 'relating it to what was required at TAFE' and 'visualising what we do on site', were seen as central to facilitating learning off-the-job. Using personal experience was described in the following manner by one apprentice:

> *I can make the frame and, as I am learning about making frames, I can go through in my mind the way I go about doing it. You have experienced it and you can relate to it a lot easier.*

These on-job experiences also assisted apprentices to remember methods or processes which were applied, often in a modified form, at TAFE. Apprentices often used the term 'revision' where referring to learning at TAFE, suggesting that on-site experiences provided the initial catalyst for learning but that experiences at TAFE reinforced and enhanced this learning.

Experiences on site also helped apprentices with their assessments at TAFE. Experiences, built up over time, allowed apprentices to complete assessment tasks in less time and with less anxiety. As one declared, 'I didn't have to study for the tests or anything. I just knew most of the stuff'.

Time spent at work seemed to allow for apprentices' knowledge to become more 'automatic'. They often could not articulate 'where their knowledge came from', but the experience of assessment at TAFE showed them that they did know the topic or skill in question at that time.

Apprentices reported being better prepared, and less anxious, about their learning at TAFE as a result of their on-job experiences. They reported being able to complete tasks (particularly the 'book work') more quickly and pay greater attention to the finer details that were often presented by the TAFE staff:

> *You were able to pick up on a lot of things. They'd say something and you'd know what it was and you could do it . . . You got through the bookwork much quicker . . . after working, the actual bookwork and all went pretty quick because you knew what you were doing . . .*

Apprentices also felt that on-site experiences built their confidence which helped them to tackle learning about new topics and skills at TAFE. The recognition that the apprentice had already been able to cope with a variety of experiences on site seemed to be the key to such confidence.

A number of apprentices linked their on-site experiences directly to improved performance, reported variously as being able to 'ace the class' or 'helping you to look good' at TAFE:

> *With my father being the builder, little steps have helped me achieve better projects at trade school. Whereas you turn around and see other apprentices that just rip into it and they come out with bad projects . . .*

For another group of apprentices, on-job experiences helped with TAFE because they provided 'the other half' of their learning. For these respondents, the two environments were inextricably linked with one supplementing and supporting the learning that occurred in the other:

> *It gives me understanding of both. Understanding how to do it the practical way, and they teach me at school the theory side, I sort of combine them and know what they are talking about. If you haven't done the practical and had it explained to you, you are not clear what they are on about. It mixes both in well.*

For a group of apprentices who were in the latter stages of their apprenticeship, their on-job learning provided the impetus for increased independence as a learner at TAFE. This independence manifested itself in a number of ways:

- an increased capacity to work on their own

  If you do a certain module and you have a clue about it, it's a bit easier to learn. You know you can fill out the book by yourself. You can do the practical with ease because you know what you are doing . . .

- the opportunity to help other learners

  What you learn at work you can really refresh in your memory and actually do it at TAFE. Those who don't know or if things change, or something happens, you can teach others and show them how to do it.

- the capacity to accommodate the requirements of the teachers at TAFE rather than to follow directions

  You get to TAFE and the teacher tells you one way of doing it and you ignore him and you go away and do it the way you have been doing on site and you do it ten times quicker and you get better marks for it . . . by second year, you know all the lecturers and you know what kind of tolerances they have got, and if they don't like you doing it your way, you do it their way just to keep them happy.

- the confidence to be openly or covertly critical of the information provided by TAFE teachers

  When a lecturer turns around to you and says, 'this is how you do it', you turn to the lecturer and say, 'no, that is not how you do it'. . . Or you just sit there and you say to yourself, 'no, no, that is not how you do it, I know how to do it'. You listen to what they have to say and then you weigh it in your mind which would be the better way.

- the ability to be more self-directed in their learning

> *With my Dad especially, he gets me to think for myself . . . I'm always trying to think of the next step and therefore I'm not interrupting the lecturer and he can go off with somebody else and teach them. I'm teaching myself which is a greater learning experience and, doing that particular thing, it teaches me something at the same time as I'm teaching myself more or less.*

Apprentices therefore see many benefits accruing from their on-job experiences when they go to TAFE. In complementing their learning on site, apprentices reported an increased feeling of confidence and competence as a learner. Moreover, as they became more experienced on site, these experiences led them to increased independence as a learner, with the confidence to assess critically the input of TAFE teachers and in fact to undertake a teaching role by helping their peers to learn.

How does off-job (TAFE) learning help apprentices on the job?

Apprentices were less sure of how their off-job learning helps them when they are on site. For some, the learning at TAFE was even seen to be more of a hindrance than a help; for others, the learning at TAFE did help their on-site learning. This was encapsulated most commonly in the thought that 'TAFE teaches you the basics'. This was seen as the knowledge that would give apprentices a 'head start' on site and assistance when new situations arose.

> *At TAFE I feel you learn the basics, so when you are out on the job, you already know the basics. So if you come across something that is a variation on the basics, it is easier if you have done it at TAFE and have the experience.*

The contribution of TAFE to apprentices' learning on site seemed to depend upon the proximity of that learning to what was being learnt on site, with the greatest benefit being apparent when the focus of the learning was the same on both sites.

'Small things' such as 'more techniques', the ability to read plans and do calculations more quickly, were mentioned as helpful contributions from the off-site learning.

Some apprentices saw their learning at TAFE complementing their learning on site because it enabled them to bring back new ideas for their bosses. This was viewed as being a valuable contribution that apprentices could make to their host employers, facilitating their keeping up-to-date with new developments in industry. The following quotations give a sense of the collegiality that arose from these opportunities:

Sometimes I could help out [the host employer] and things like that. There are always new things in the building industry coming through and quite often we learn new things at tradeschool which we can suggest to our bosses that will help our bosses out.

It has brought new ideas in that [the host employer] didn't know that, so it is just that we mix them together and we just work through it like that. It has brought more practical ideas in the way we work together.

Learning at TAFE also plays a role in assisting apprentices to clarify what they have learned on site, providing the finer detail that is often missed out on the job and assisting in the memorising of theories which are then applied on site.

School explains it more clearly, so that they tell me and I know what [the host employer] is saying, so that when [the host employer] teaches me, I know what he is on about.

The theories and stuff that stick in your mind help you out and what you are told in the classroom, I guess it is all in your mind once you learn it. It all comes out when you hit an example of what you are doing, it sort of comes back to you.

Learning at TAFE also made a contribution to their confidence when working on site. The confidence in this instance contributes to the apprentice's ability to be able to work autonomously.

Just makes you more confident I guess. Basically this is it. Like you know you can do that, so you can go off and do it by yourself without your boss showing you what to do, or looking over your shoulder or whatever.

Summary of contributions

The contributions of the on-site and off-site environments to apprentices' learning may be summarised as in figure 3.

It is important to remember that not all of these contributions are exclusively limited to only one site. Whether from one or the other, or from both, the key issue for the effectiveness of apprenticeship learning is the degree of 'fit' between the two environments. The chapter now turns to an analysis of the extent to which these sites complement one another as seen through the eyes of the apprentices.

Figure 3: Contributions of on-the-job and off-the-job environments

On-site contributions	Off-site contributions
• a real-world environment where task management and contingency management skills are integrated into the learning process	• greater detail in the learning process
• a one-to-one learning relationship (although this may not always be possible or desirable)	• more time to think
• work experience which facilitates learning	• revision of what has been learned on site
• confidence to approach the more formal components of their training, especially in relation to assessment	• opportunities to clarify learning
• increased independence of apprentices both as learners and workers	• opportunities to contribute to the learning of workplace mentors and other apprentices
• the development of apprentices as self-directed learners	• a collaborative learning environment more conducive to learning in groups
• the development of critical awareness in apprentices	• a solid grounding in the basic skills and knowledge
• opportunities to learn in a more naturalistic manner (in a way that mirrors the rhythm of the workplace)	• a more controlled environment
• the development of declarative and strategic knowledge	• the development of theoretical knowledge
	• learning that tends to be more future orientated
	• confidence to be able to work independently and with less supervision on site

The notion of complementarity

Apprentices' perspectives on how well on-job and off-job environments complement one another

The notion of 'fit' itself was interpreted in a number of different ways by the apprentices. How they perceived this notion directly affected apprentices' judgements of the degree of complementarity between the two learning environments.

For some apprentices, 'fit' was interpreted in terms of timing to mean the coincidence of the learning they do on site with the modules they covered during a particular period of off-job training. For the majority of apprentices, this type of fit was more likely to happen by coincidence or serendipity than by any planning. For this reason, a number of apprentices commented that the on- and off-job environments rarely complemented each other. Rather, this fit was more likely to occur over a period of time:

I think that what I'm doing with [the host employer] and what I'm doing at TAFE, it's only just starting to come into it . . . Now that I am starting to learn about frames and the different parts of roofs . . . it's just starting to coincide.

'Fit' between the two learning environments was also interpreted by some apprentices in terms of the degree of relevance of one to the other. In most cases this was the relevance (or lack) of off-job learning to on-job learning. The on-job site was the benchmark for determining relevance and hence the complementary nature of the environments. In apprentices' opinions, the fit in terms of relevance between the two environments was least in the early stages of their training:

It is not really fitting at the moment because all of last year was really just to get the hand tools, hand skills up and everything like that and then there were some parts where you were getting job codes and stuff like that . . . but up until now, there is not really all that much that compares.

Apprentices spoke of being able to see the relevance and link between the environments, but this fit was, once again, more a product of timing:

. . . one week we are going to be learning how to mix cement, you have got to do some brickwork, but whereas out here [on the job] we will be doing eaves or something, it is not really going to fit in, but I guess in the end it will all even up . . .

This perspective was common particularly with apprentices who had completed a pre-vocational course prior to taking up an apprenticeship with the HIA. In these instances there was often a long gap between the learning at TAFE and being exposed to learning on site:

Most of the stuff I learnt was after I finished TAFE, so when I was at TAFE I wasn't really doing rooms at work . . . it just introduced me into doing a roof and then when I got on site a year or so later I got to do the roofs on site.

Another interpretation of the notion of 'fit' was the degree of utility of the learning undertaken in one environment for the other. Once again this was usually measured in terms of the usefulness of off-job learning for their work on site. The environments were seen to complement one another when an apprentice could:

- put into practice the basics learnt off job

  You learn the basic skills at TAFE and then put them into practice out here.

- apply the basics learnt off job to a variation of the task on site

  We learnt how to do a gable at TAFE—that was a basic gable so I knew the basics, but this particular one [on site] was a variation on what I had learnt at TAFE . . . I might have been able to figure it out. I don't know if I would have been able to do it, but it would have taken a lot longer if I'd come across it, say if I were a sub-contractor and came across it on site.

- work more effectively or efficiently with their host employer on site

  About a month or two ago, [I did] my roofing modules . . . that's helped me because when [the host employer] asks me to do or tells me something, I can already tell him what I am going to do or I might have already prepared to do it.

There were a number of comments from apprentices that indicated that the fit between the two environments was enhanced when learning on job could be applied to the learning undertaken at TAFE. In these cases, the fit was seen to make the learning at TAFE easier:

> *I suppose doing a lot of things before you go to trade school, on the job-site and then getting there, you've got a fair idea, so that kind of ties it in and makes trade school a lot easier . . .*

Other comments by apprentices revealed further insights into how the two learning environments complement each other. In one instance the two environments were complementary in that one provided the theoretical knowledge (the 'why') whilst the other the practical 'know-how'.

> *[The host employer] shows me how it all goes together, how the jigsaw puzzle goes together, but at TAFE they teach us why it does go together, why it goes that way. The reasons and things why we are putting things where they are. . .*

For another apprentice, 'fit' was exemplified by the opportunity to share their learning from the off-job environment with their host employer. The fit was derived from the exchange of views and ideas and the sense that the host employer had the opportunity to gain some new knowledge. The fit between the two environments was achieved by the shared understandings that were the product of this interaction.

> *. . . he will ask me when I get back from a week from TAFE, he will ask me what I have done and I will say 'we learnt about truss roofs' or something like that, and he will turn around and say 'like this and how would you do this' and sometimes you help him, he doesn't know. He picks up knowledge and I can tell sometimes laws change and the way you do things, different standards come in and I will work something out . . .*

For about one third of apprentices, however, the notion of 'fit' or the complementary nature of the learning environments was not a conscious reality. They viewed the two environments as being so different that they were likened to comparing 'apples with pears'. This difference was attributed to a number of factors:

- the sequence in which the learning takes place in the two environments

  At trade school, you're not doing the same thing and on the job you've got maybe five or six different steps to putting up a house and you just go in order with those steps. At trade school, the call-up sheet I had last year,

their module course was all over the place. I'd be doing second-fix first, then first-fix second, then the roofing after that, flatting after that. You know, that's the way their system is. If they went through from the start, your basic tools, then first fixing, wall frames, roofing, floors, that sort of thing and then go onto second fixing, it would be lot easier.

- the absence of some on-site experiences from the off-job site

  I suppose carpenters are timber orientated whereas steel, they haven't really found a trade for it because carpenters don't want to be involved with steel, so tradeschool hasn't ever spoken about steel before.

- the limited scope of the work available on site

  It's not really fitting at the moment . . . I am just waiting because this is all we do, whereas some people at tradeschool do the whole lot for the whole house, like all the carpentry part of it so I sort of miss out on that but I don't mind it because I like doing this . . .

- the nature of the two learning environments

  It's sort of two different things so it's hard to compare. Still with [the host employer] it's one-to-one learning and with the college there's you and say another 15 apprentices, so if you get someone talking behind you or beside you, you can lose track for 30 seconds or whatever and lose a vital bit of information. Really, I think I benefit more from being with [the host employer] than what I would listening to a lecturer, depending on other students around me.

- the difficulty of leaving the host employer on site

  Because I go away for two weeks at a time, [the host employer] has to either find someone else for two weeks or it puts his schedule out of plan.

- the unpredictable nature of the on-job work

  There is no way you can fit it [off-job training] in on the job, because there is no way you know what you are doing on the job the next day from day to day.

A number of apprentices spoke of the two environments as being entirely separate and self-contained. They saw little relationship between the two.

> *Trade school has its own course . . . they have got their own course and they stick to it, and on the job it's just working day by day on what is next, what has got to be done. They don't fit together at all in a sense, they do their own thing which I suppose is the easiest way to do it.*

It appears therefore that complementarity is more than a coincidence of learning the same material on both sites. It also relates to the perceived relevancy of the learning to the stage of development of the apprentice. Integration takes both time and the active support of mentors from both environments—especially the workplace host employer. Integration is

enhanced when the apprentice can apply the basics to new situations, when the learning contributes to the apprentice working more effectively and efficiently with the host employer and when the learning does not disrupt the workplace routine to any large extent.

Bringing learning together: Integration from the apprentices' perspective

Regardless of the abstracted ideas of what each learning environment had to offer and all ideals about how they might or should fit together, the experience of integrating the learning from different contexts was spoken by apprentices in a manner which suggests an intensely personal and continuous concern. Rather than seeing integration as a product of systems interacting in a manner which facilitated their learning, these apprentices viewed it as a process which was integral to their becoming a tradesperson. The process of moving from the worksite to TAFE and back to the worksite involved more than readjustment to different geographical locales. It involved an active engagement with the ideas and experiences from both learning environments. It also entailed a process of learning which was complex, unpredictable and often solitary, even though they were in a TAFE classroom with other apprentices or out on site with a number of different tradespeople.

The other significant factor which shaped the apprentices' approaches and attitudes to how they integrated their learning was the reality of being a part of a group training arrangement. The on-site learning environment is an unpredictable environment which is not primarily established to facilitate their learning. Apprentices are often moved from host employer to host employer depending on the flow of work and other business demands. These moves require the apprentice to negotiate working and learning in a variety of on-site environments which often have little in common and require constant reappraisal of ways of working and relating with co-workers. These processes are additional to the need to cope with the demands of moving from a classroom-based learning environment at TAFE to the workplace learning environment. It is in these contexts and with all their accompanying ideas, biases, values and ideals that the apprentices attempt to integrate their learning. Descriptions of how apprentices tackled this process reveal some interesting insights.

A number of apprentices reflected on integration of their learning through the process of having to (re)-evaluate some of their work habits which might have been acquired during the course of their training. The term 'bad habits' was defined in various ways, usually by the host employer or other co-workers with whom the apprentice was working. A work practice would usually be labelled in this manner if the apprentice

departed in some way from the work practices of the host employer. In these cases the apprentices were often told they were 'doing the wrong thing'. Apprentices spoke of the need to be able to 'go back to basics'. This was (hopefully) accompanied by the host employer being willing to tell the apprentice what they had done wrong, demonstrate the preferred approach and generally be supportive of the apprentice as they modified their work practice. One apprentice expressed it this way: 'I suppose you just have to go back to basics. Hopefully they'll tell you what you're doing wrong and you just go from there'.

This situation was reflected in many apprentices' descriptions of their learning and was largely seen as a natural part of a learning environment shaped by economic pressures. The working environment sometimes required the apprentice to adopt deliberately a poor work practice because that is what the host employer wanted. In these instances, integration of learning required the apprentice consciously to discriminate between poor and good work practices, drawing on what had been learnt from other contexts, but nonetheless following the requirements specified by their 'boss' at the time. Fitting the learning together in this instance was achieved by 'doing what I know I shouldn't do'.

Making sense of what they were learning was often made difficult by frequent and often unwelcomed moves from host employer to host employer. Many apprentices described how these circumstances often meant they were expected to 'forget what the last carpenter taught you' and the confusion that arose in their minds as a result of this demand:

> *If you're thrown around to different carpenters that makes it difficult. When I got sacked from the first carpenter, I was shifted around for about two or three months. I was with three or four different carpenters and they've all got different methods, so when you're working with one carpenter for two or three weeks, you've got to virtually forget what you've learnt before and go by their method. When you go to the next carpenter you've got to forget what the last carpenter taught you and go by their methods, so it gets confusing.*

Shifting from host employer to host employer also meant that some apprentices found that their knowledge (that is, 'what I thought I knew') was challenged. Making sense of these circumstances required a flexible approach with the concomitant opportunity to find out why they might be wrong and the reasons for having to learn alternative work practices. Opportunities to ask questions were an important part of this process, along with resisting the temptation to blame someone else ('I cut the stud short because he made me lose my train of thought') which often would then inhibit the opportunity to learn.

> *I would like to think that I was flexible. If I am proven wrong on something, I will learn or find out why I was wrong, [by] reading, asking questions.*

The processes of learning, unlearning and relearning were often made more difficult by encounters with host employers who seemingly had little patience with, or understanding of, the way in which the apprentice might be feeling, particularly if they had made a mistake. These host employers also had little sympathy for the resulting effect of this on the apprentice's ability to take in new information to be able to correct their work, both in the short and longer term.

> *I would get yelled at — 'Oh, you don't need to do that rah rah rah' — so then I would be put down so then I have got to try and do the right thing when you can never do the right thing because he is Mr King G or something, doesn't like to be wrong. Just little things like that, you never get taught the real big stuff, just the main little things.*

In some cases 'bad habits' were recognised by the apprentices themselves when, in the course of their work, they were shown a different method which would often lead to increased skill and efficiency. This type of process was often welcomed by apprentices as they believed it made a worthwhile contribution to their development as tradespeople and was focussed on achieving a goal which they knew was valued by the host employers. One said, for example, 'I don't really have a problem with that; if I have to learn it another way to make it better, I will'.

The individualistic nature of this learning process was often highlighted by apprentices commenting that they are often 'trying to remind myself not to do it the other way', and seeking opportunities which allow some repetition to reinforce new and different ways of working. Apprentices also revealed they are trying constantly to remember to think about and concentrate on that particular aspect of their work rather than 'just doing it automatically'. These practices were facilitated by a host employer who was perceived to be sympathetic towards the apprentice and who appreciated the somewhat confusing circumstances in which they were required to learn and work.

Whilst some apprentices related to the idea of replacing or 'forgetting' old ideas, many others held the view that the process of integration could best be described as a transformative rather than a formative process. It required the apprentice to be able to analyse alternative points of view, make judgements and come to a conscious decision to work in a certain manner deemed to be most appropriate given the context, the orientation of the host employer and other work-related factors. Integration of learning was about being able to develop competencies to manage the contingencies of the workplace and the intricacies of the task at hand, in a manner which enabled them to make a contribution valued by the host employer with whom they were working.

> *. . . you just take that [the alternative way] in as well, and depending on the time, one might be more effective but slower, whereas one might be*

quicker but it might not be, like you can call it rough or not, but it is not really rough, it is quicker but it is not as neat, not as pleasing to the eye. It depends. If we are doing a roof in a day, we go for the fastest method, not the most effective, the fastest, but it is still structurally sound. Don't get me wrong there, we don't cut corners when it comes to stuff like that, because our reputation is on the line . . . There are a number of different ways of doing anything in life and you just work out the best way at the time. If you are doing it one way and the boss says, 'No, I would like you to do it that way', then you do it that way. It is not worth mucking around with it, you just do it.

Integrating and making sense of a variety of approaches to a particular task, in the view of one apprentice, placed him in a position where he thought he would not be viewed as competent by his co-workers:

It gets frustrating. You're always asking questions and if you go with another guy, you're always asking questions and sometimes I get the feeling that you don't know a lot because everyone's got different practices. You always end up asking them a lot of questions, because if you did it your way, they get upset. You always have to constantly ask them and a lot of times they think you don't know all that much.

Making space for the processes which enable the apprentice to make sense of what they needed to know and do in this instance was seen to compete with the need to make a productive contribution in the workplace. The process of integrating different approaches and ideas also appeared to have a real impact on the apprentice's self-esteem. The fact that the process needs to occur at all is indicative, in the eyes of this apprentice, of not being able perform to the standard required.

The importance of space to be able to bring together learning from different contexts was emphasised by some apprentices. They saw this as a vital step towards the goal of developing their own ways of working which is a hallmark of a tradesperson.

Just sort of put both ways together, because that is what you do, you change the way you do things and make your own. Because different people teach different things, so you take bits out of what everybody has taught you and you make up your own way, whatever is quicker for you, whatever is easier.

Conclusion

From the evidence in this study, we conclude that the on-job environment is generally perceived to help the off-job environment more than vice versa. Both sites make contributions to increasing the confidence, competence and independence of the apprentice, yet the on-job site appears to make the greater contribution.

The comments reveal that these contributions are mediated by a number of key factors, including:

- the orientation of the host employer
- the personal characteristics of the apprentice
- the stage of development of the apprentice
- the nature of the worksite
- the previous experiences of both the apprentice and host employer
- the nature of the relationship that exists between the host employer and apprentice
- the timing of the off-job learning *vis-a-vis* the nature of the on-job work

What the apprentices seem to be saying is that integration of on and off-job learning is most likely to occur:

- only after a passage of time (over three or four years) and with space
- at different moments and under different circumstances, often with the assistance of serendipity
- in conjunction with both good and bad experiences, which are all recognised as learning experiences *per se*

In reality, the picture is not so much one of exclusives but rather a picture of resonance between the environments. The two worlds resonate for the apprentice, where acquired baggage in the form of information and skill oscillates backward and forward between sites being affirmed or contested as it travels.

The apprentice acquires more baggage and, increasingly, also develops the ability to sift, discern, evaluate and ultimately synthesise. Thus, over time, the two worlds come to enrich one another (albeit in the face of varying degrees of contradiction and discomfort) for the benefit of the apprentice.

10 The perceptions of interstate counterparts

An integral component of the research from the beginning was the interstate survey of apprentices, host employers and TAFE teachers in order to test out interesting ideas and insights from the interviews in South Australia. As explained in chapter 4, the design of the questionnaires was based directly on the three research objectives of the study and the response formats evolved from the interview transcripts. The questionnaires (appendix C) were piloted in Victoria and then distributed to counterpart samples in New South Wales and Western Australia.

Apprentices (n=76), host employers (n=73) and TAFE teachers (n=103) in these two States were asked questions about the purposes and usefulness of on and off-job training in helping apprentices learn their trade, the importance of various factors in helping to integrate effectively on and off-job learning for apprentices and whether these factors were currently happening in their situations. They were also asked how effective the present combination of on and off-job training was for apprentices, factors that hindered the integration of on and off-job learning for apprentices, and suggestions for changes to increase the effectiveness of the learning by apprentices. This chapter presents the views of these counterpart populations as an empirical overlay to the narratives already detailed in chapters 5–9.

Purposes of on-site training for apprentices

During the interviews conducted with host employers in South Australia, a number of different purposes for the on-site component of apprentice training were highlighted. These purposes were analysed and clustered into themes, and then incorporated in the questionnaires for the host employers (called 'workplace trainers' in the questionnaire but 'host employers' in this report for consistency), apprentices and TAFE teachers in New South Wales and Western Australia. Respondents were asked to rate each of these purposes on a five-point scale from 'very important' to 'not at all important'. Complete data from responses to this question for each of the three groups of respondents are presented in terms of absolute numbers and percentages in appendix D (tables D–1, D–2 and D–3).

For each purpose, the rankings and mean scores of the host employers, apprentices and TAFE teachers are given in table 9. The mean scores for each purpose were calculated by assigning the following points for each level of importance: 'very important' (5), 'important' (4), 'moderately important' (3), 'important to some extent' (2) and 'not at all important' (1). Figure 4 then presents these data in diagrammatic form for ease of comparison.

Table 9: Rankings and mean scores on purposes of on-site training for apprentices—host employers, teachers and apprentices (NSW/WA)

Purposes of on-site training for apprentices	Host employers:		TAFE teachers:		Apprentices:	
	rankings	mean scores	rankings	mean scores	rankings	mean scores
• To teach practical skills in a worksite environment	1	4.81	1	4.52	1	4.80
• To pass on the trade to apprentices	2	4.59	5	4.18	–	–
• To help apprentices to learn for their future role as tradespeople	3	4.55	4	4.25	2	4.68
• To provide the training that is missed in the off-job environment	4	4.47	10	3.72	3	4.53
• To help apprentices understand the way the workplace operates	5	4.45	=2	4.27	5	4.37
• To build the confidence of the apprentices	6	4.32	=2	4.27	6	4.25
• To apply what apprentices learn off the job	=7	4.15	6	4.12	7	4.09
• To help the apprentices get their qualifications	=7	4.15	8	3.87	4	4.45
• To motivate the apprentices to work	9	4.14	7	3.88	9	3.78
• To help the trainer/sub-contractor in their work	10	3.68	9	3.84	8	4.03
• To correct previous training done with other sub-contractors	11	3.42	11	2.89	10	3.05
• To correct previous training done off the job	12	3.37	12	2.40	–	–

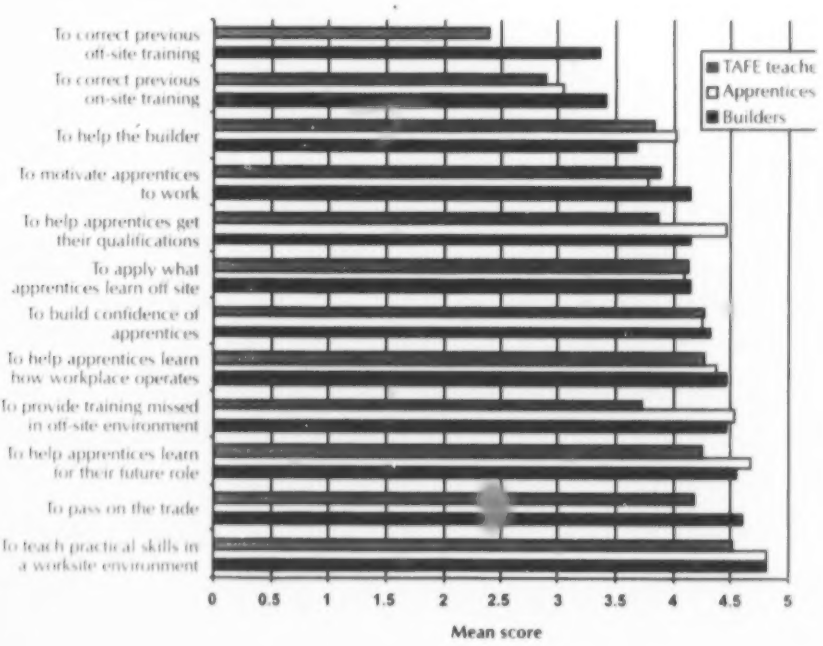
The data reveal a number of very interesting differences between the sets of actors. The teaching of practical skills in a worksite environment was highly rated (though more highly rated by apprentices and host employers than by teachers) and it was ranked first by each of the three groups. The image of the worksite being the 'place for the prac.' is strongly reinforced.

An evident trend, supporting the observations of the interviewers, was the close similarity of the apprentices' rankings and mean scores with those of their workplace mentors. The strength of the workplace culture

is powerful. The interviewers had noted the uncanny coincidence in behaviour between the South Australian apprentices and host employers, even to the point of apprentices' dressing and speaking like the host employers. These results show that their opinions also are virtually identical to those of the host employers. There was, however, one noticeable difference, accounted for by vested interest. The apprentices rated the help of on-site training in acquiring their qualification (ranked 4) higher than the host employers (ranked 7).

Another instance of vested interest in table 9 is the difference in mean score of TAFE teachers compared with host employers on the correction of previous training done off job. It was, perhaps, rather surprising—given the South Australian criticisms of the off-job component—that host employers had not ranked this purpose higher. Both groups ranked it last. However, while 46 per cent of the host employers thought this purpose was important (including 21% very important), a mere 17 per cent of the teachers did so (including only 2% very important). Likewise, the purpose of providing training that is missed by the off-job environment was ranked highly by both apprentices (ranked 3; important 90%) and host employers (ranked 4; important 88%) but quite understandably not so highly by the TAFE teachers themselves (ranked 10; important 68%).

Figure 4: Mean scores on purposes of on-site training for apprentices—host employers, teachers and apprentices (NSW/WA)



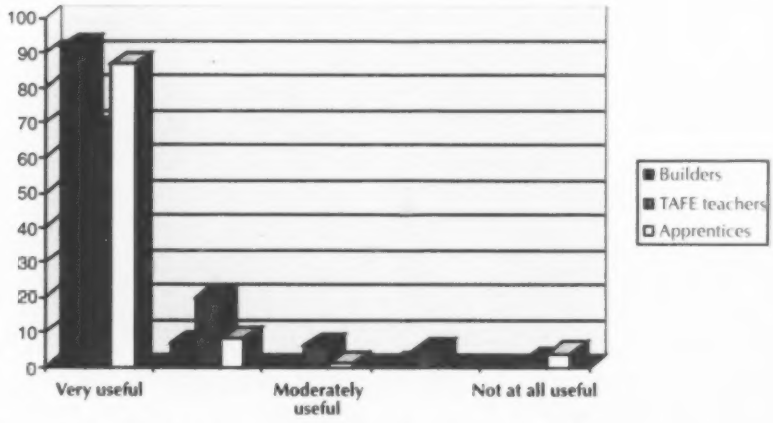
The function of on-site training as a significant vehicle for inculcation of trade values appeared to receive support from these results. Both passing on the trade and helping apprentices to learn for their future role as tradespeople were ranked highly, especially by the two workplace groups. The apprentices, in particular, thought the second of these purposes relating to their future role was very important (72% of apprentices compared with 62% of host employers and 55% of teachers).

What may be considered more teaching-type interests than workplace concerns—namely, understanding the *modus operandi* of the workplace and building apprentice confidence—were ranked more highly by TAFE teachers (rankings of second on both) than by the host employers and apprentices (both rankings of 5 and 6).

Usefulness of the on-job environment in helping apprentices to learn

All participants were asked for their opinion on the usefulness of the on-site environment in helping apprentices to learn their trade. Not unexpectedly, usefulness was rated highly by all, especially by the host employers and apprentices (see figure 5; and table D–4 in appendix D).

Figure 5: Usefulness of the on-site environment in helping apprentices to learn



Reasons for these views were clustered into seven key themes.

The on-site environment provided an authentic setting which was seen as being vital for the type and scope of learning which apprentices needed to engage in if they were to become 'good' tradespeople. The on-site environment was important because it assisted apprentices to learn about 'the sub-contracting work ethic' and 'the way in which the workplace

operates'. The on-site environment was viewed as useful because of the beliefs about how learning occurs that were held by some host employers. Essentially a number of host employers believed that 'you learn by doing', and therefore the on-site environment was the place for this to occur because it was authentic and 'real life'. The on-site environment also provided the context in which the learning at TAFE is made meaningful, useful and applied in the environment where the apprentice will work as a tradesperson.

> *There is not a tech or college that can teach you the real life on-the-job experience and it's where you spend the next 40 years of your life. So you must be good at what you do.*
>
> *Puts off-site education into the context of the workplace. Without on-site training, the apprentice would be useless.*
>
> *Teaches them to use their trade in the same environment at which [sic] they will earn their living as tradespeople.*

The on-site environment was also rated as very useful because it allowed apprentices to be exposed to a range and depth of experiences which contributed to the development of a tradesperson. In particular, exposure to the practical skills, opportunities to work with other trades, exposure to the critical skills of the trade and the problem-oriented nature of the workplace were mentioned by respondents as reasons for the high value they placed on the on-site environment.

> *Although off-site training provides basic learning, the solving of problems on site on a day-to-day basis provides greater experience.*
>
> *Practical skills, also in relation to other trades, the importance of working together with other trades and suppliers.*

The on-site environment was viewed as very useful because it provided the type of environment which was necessary for the type of learning which the apprentice was undertaking. Because the trade is viewed as essentially 'practical', the on-site environment was viewed as the best place to learn.

> *The trade is essentially practical. On-the-job training is the best place to learn to apply the principles learned off the job. Given the variety of situations encountered on the job, there is no way off-the-job training could train you properly.*

There were a number of host employers who stated that the on-site environment was important because it offered a place where the principles learnt at TAFE could be applied, tested and, where necessary, modified to suit the real world of work. The notion that 'no amount of theory' could make up for on-site experience was a strong theme to emerge from host employers' responses. The on-site environment also provided opportunities for the knowledge obtained at TAFE to be 'refined and developed' via on-site experiences.

There was also a belief that the on-site environment was most useful because this was where 'trained tradesmen' were located. These people were viewed as being essential to apprentices' learning. A related theme expressed the belief that on-site training was very useful because it dealt with what TAFE did not teach, or taught more up-to-date methods.

> *How would they learn if there was no trained tradesmen [sic] to teach them? They would never learn.*
>
> *The TAFE does not teach the things that need to be done on the job.*

The on-site environment was also viewed by a number of respondents as the place where apprentices become tradespeople. On-site training helps build attributes and skills such as problem-solving, confidence and teamwork which were seen as essential attributes for a tradesperson to hold.

> *Theory is useful, but there are always problems that occur on site that need to be overcome with planning and lateral thinking that cannot be achieved off site.*
>
> *The environment on site should build confidence, practical skills and appreciation of fellow workers and their skills.*

The characteristics of the apprentices were also another factor in host employers rating the on-site environment as useful. Apprentices' roles as learners and potential employees were given as reasons for these views.

> *Generally, apprentices are young, 16–17 years, and tech. is a game to them. Most of their learning is done on site.*
>
> *Hands-on learning is usually more easily understood [by apprentices].*
>
> *It prepares them for the expectations of the employer in completing projects.*

There were many positive comments about the usefulness of the on-site environment in helping apprentices to learn their trade. Only two host employers offered guarded comments which suggested that this environment might be problematic or not work to the full advantage of the apprentice in all circumstances.

> *Only if employment is trade focussed. A large number of apprentices are employed as cheap labour.*
>
> *Very useful. However, time and expense prohibits one from doing the very best job.*

TAFE teachers, whilst agreeing with many of these sentiments, were more guarded in their assessment of the benefits of on-site learning. They concurred with views relating to the authenticity of the on-site learning environment, stating that it provided the 'test conditions' where skills acquired by apprentices could be matched to the requirements of a commercial environment. On-site learning was also

valued for its ability to provide motivation for apprentices to increase their level of skills. The workplace was also seen as providing greater opportunities for practice and consolidation of skills through the repetition of tasks in a range of environments which 'no simulated environment' could match. However, many of these benefits were stated along with the caveat that they could not occur without the off-site contribution made by TAFE. Without this off-site component, apprentice training could be viewed as 'unbalanced' and not able to facilitate apprentices' learning to the fullest extent.

A number of the teachers went further than this, stating what they believed to be substantial limitations to the training which apprentices might receive on site. These included:

- the lack of 'industry perspective' (largely attributed to the specialised nature of the work) provided by individual sub-contractors
- the inability of host employers to provide quality training and supervision
- the inherent contradiction between learning on site and the need for the employer to make money which, in the opinion of the TAFE teachers, would always mean that learning would be subordinated to the needs of the business

Purposes of off-job training for apprentices

As with the purposes of on-job training, the SA interviews highlighted a number of different purposes for off-site training which were then incorporated in the questionnaires for the interstate participants. Respondents were asked to rate each of these purposes on a five-point scale from 'very important' to 'not at all important'. Complete data from responses to this question for each of the three groups of respondents are presented in terms of absolute numbers and percentages in appendix D (tables D–5, D–6 and D–7).

For each purpose, the rankings and mean scores of the host employers, apprentices and TAFE teachers are given in table 10. The mean scores for each purpose were calculated as before. Figure 6 presents these same data in diagrammatic form for ease of comparison.

These data show that, once again, the views of the apprentices were almost identical to those of the host employers in terms of both rankings and mean scores. The one item on which there was a slight variation was the purpose of teaching practical skills, where 56 per cent of the apprentices believed this was important compared with only 39 per cent of the host employers.

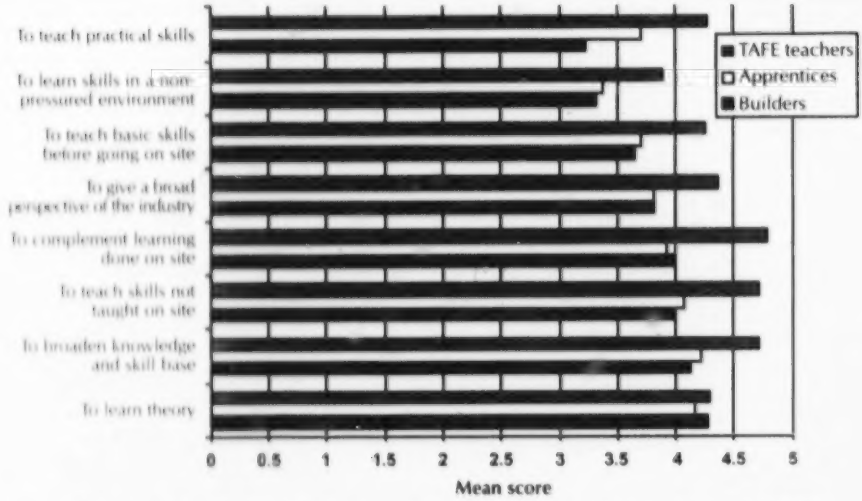
So, too, was the familiar stereotype of the off-site environment providing the theory strongly supported. Eight out of ten in each sample saw this as an important function, though the teachers ranked it lower (number 5) than did the other two samples (ranked in the first two). The teachers were evidently downplaying this purpose relative to other functions of off-job training. Interestingly, what teachers highlighted as their own key purposes were the complementing of what apprentices do on site (ranked 1) and the teaching of skills not taught on site (ranked 2). Their interpretation therefore appears to be concentrated more on the actual operations and skills-base of apprentices rather than the theory. They are seemingly intent on emphasising the more practical elements where the on site either requires reinforcement or cannot, or does not, deliver. In taking this line, the TAFE teachers are trumpeting their role more as a supplement than a complement of workplace learning.

Table 10: Rankings and mean scores on purposes of off-site training for apprentices—host employers, teachers and apprentices (NSW/WA)

Purposes of off-site training for apprentices	Host employers:		TAFE teachers:		Apprentices:	
	rankings	mean scores	rankings	mean scores	rankings	mean scores
• To teach theory	1	4.14	5	4.29	2	4.17
• To broaden the knowledge and skill base of the apprentices	2	4.14	1	4.70	1	4.21
• To teach the skills that are not taught on site	=3	4.03	2	4.71	3	4.07
• To complement the learning that apprentices do on site	=3	3.99	1	4.78	4	3.93
• To give apprentices a broad perspective of the industry	5	3.86	4	4.36	5	3.82
• To teach the apprentices the basic skills before they go out on site	6	3.72	7	4.25	7	3.70
• To teach practical skills	7	3.40	6	4.28	6	3.71
• To learn skill in a non-pressured environment	8	3.23	8	3.88	8	3.37

There appears a general consensus across all groups that the last three purposes are the least important relative to the other five, especially the learning of skills in a non-pressured environment (ranked last by all three groups). That the purpose of teaching basic skills prior to going on site should be ranked low in comparison with the others is intriguing. Host employers, in particular, might have been expected to have ranked this one more highly so that apprentices could be more productive earlier. However, all means were relatively high, and still 62 per cent of host employers considered this purpose to be important.

Figure 6: Mean scores on purposes of off-site training for apprentices—host employers, teachers and apprentices (NSW/WA)



The final aspect to note about these data is the high mean scores of the TAFE teachers. Except for one slight variation on teaching theory, their means were higher than the other two groups on all purposes. While this is not altogether surprising, given it is their patch that they are analysing and know well, the size of the mean score (all but one above 4.2) and the high percentages on 'very important' reveal a very strong belief in the significance of their role in the training of apprentices for industry. These responses may also, not unexpectedly, be revealing in the current political climate a clear need to defend and justify their role.

Usefulness of the off-site environment in helping apprentices to learn

Participants were asked for their opinion on the usefulness of the off-site environment in helping apprentices to learn their trade. While two thirds of host employers and three quarters of apprentices rated the off-site environment as 'useful' or 'very useful' in helping apprentices learn, a very high 97 per cent of TAFE teachers gave this verdict (see figure 7; and table D-8 in appendix D). Clearly there is an important difference in the views of the three groups on this issue. Although the proportions of the first two groups is high, there is evidently an important minority in the workplace who believe the off-job environment to be of moderate or little use to apprentices. This is a finding that has significant ramifications for notions of integrated training and for attempts to implement any such arrangements.

Those host employers who believed the off-site training was either 'useful' or 'very useful' provided a range of reasons for their answers. Some thought that the off-site environment enabled apprentices to learn 'the essentials' or 'the basics' on which they then built their trade skills. This knowledge was also viewed as important because it facilitated on-site learning. One host employer stated:

> *Site instruction cannot address adequately the learning of codes, standards, practice and theory without a classroom and syllabus structure to support it.*

The off-site environment was seen to provide the 'why' or theoretical component of apprentices' learning which may be too difficult to teach on site for a range of reasons (for example, a lack of time). This theory can then be grounded in the work undertaken out on site and provide the 'principles behind their activities in order to provide appropriate solutions to variable applications'.

Some workplace host employers rated the usefulness of the off-site environment highly because it allowed apprentices to learn things that were not part of the on-site environment and therefore to broaden their skills and knowledge. TAFE was seen to provide a valuable back up to on-site training and to offer a non-pressured environment where apprentices could 'understand the skills' as a precursor to applying them in the pressured environment of the workplace where jobs must 'be done once and correctly'.

> *It enables apprentices to learn things not often shown on site.*
>
> *Off-job training is essential to broaden the scope of the apprentice . . .*
>
> *It is important that they learn and understand the skills needed in a non-pressured environment. On the job is full of pressure . . .*

Other host employers also held the view that TAFE offered the opportunity for apprentices to receive a 'balanced approach' to their training. This was considered necessary because of the impact of the workplace on the types of training that can be sometimes offered to apprentices. Some workplace trainers 'can teach bad or incorrect practices and skills'.

> *. . . because workplaces are so different they tend to specialise, not giving a broad view. As an employer it is haphazard, unstructured straining that you teach because there is not enough time to spend with the apprentice.*

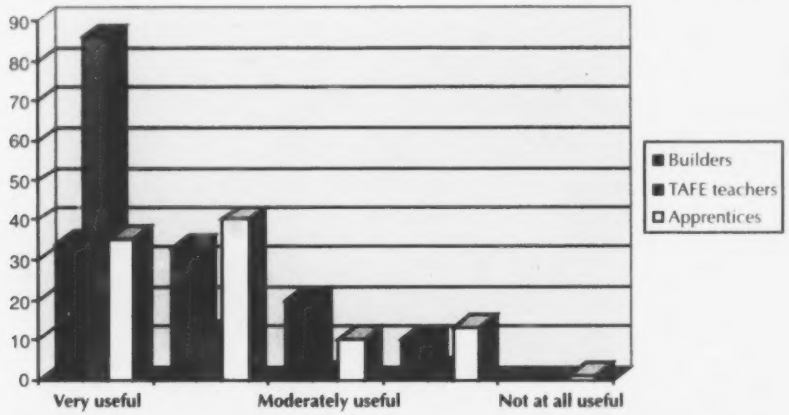
A number of host employers and apprentices did not rate the off-site environment highly in terms of its usefulness (see figure 7). Some saw TAFE providing 'a bit of a break' and exposure to other areas of the trade that might be useful to the apprentice. The lack of time at TAFE was viewed as problematic by one trainer because it did not allow 'detailed work' to be undertaken. A substantial number of host employers and apprentices believed that what was taught at TAFE lacked links with the 'real' world of work, and therefore was not as useful as it could be.

What is taught in most courses is not practical in most workplaces. I feel that most courses should be streamlined to suit their employment.

The apprentices shared many of their employers' views about what was useful about their off-job learning. In particular, apprentices believed their learning at TAFE was useful because it:

- provided theory to underpin their workplace learning
- gave them a broader understanding of their trade and the industry
- complemented their on-job learning by providing skills which were classified as 'not hands-on skills', for example, public relations and contacts within the industry

Figure 7: Usefulness of off-site environment in helping apprentices to learn



The level of usefulness attributed to the off-site environment can also be gauged from the frequency with which host employers and apprentices refer to learning in that environment when on site (table 11).

Table 11: Frequency of reference to off-site learning—host employers and apprentices (NSW/WA)

Frequency of reference to off-site learning	Host employers		Apprentices	
	n	%	n	%
Very frequently	9	12	8	10
Often	15	20	20	26
Sometimes	35	48	37	49
Seldom	12	16	10	13
Never	2	3	1	1
Totals	**73**	**99**	**76**	**99**

There is a consistency in the frequencies given by both groups. Approximately one third talk about the off-job environment 'very frequently' or 'often', and almost another half talk 'sometimes'. The

minority—approximately one-fifth—in these groups who seldom or never talk about the off-job environment are unlikely to be advocates for integrated training arrangements and seemingly do not believe that environment is worth discussing while at work on site.

The lack of frequency of discussion about the off-site training was attributed to a number of factors:

- the off-site training is not practical and unable to be applied to the worksite
- the host employers' lack of knowledge of the TAFE curriculum
- what is learnt at TAFE does not coincide with the learning undertaken on site

Host employers reported talking about a range of issues that were derived from conversations about the off-site training undertaken by their apprentice(s). Topics discussed included new ideas/products, safety issues, codes and standards and the origins of incorrect procedures observed by the workplace trainer. A few host employers acknowledged that talking about TAFE with their apprentices provided a means for them to up-date their own knowledge of their trade.

Some host employers indicated that they referred to the off-site environment frequently and offered a number of reasons for these actions. Reference to learning at TAFE was seen to assist in building the confidence of the apprentice.

> *Need to reaffirm and build confidence by quizzing them on their tech.*

Several other host employers believed talking about TAFE would assist apprentices to develop their knowledge and understanding of their trade, enhance apprentices' ability to 'pick up' and apply basic trade skills and assist the apprentice in bringing their learning from both sites together.

> *Always trying to get apprentices to apply, where the opportunity is available, the theory they learn at tech. in a practical way which both provides them why . . . a thinking skill . . . and reinforces their theoretical learning.*

The lack of frequency of discussion about the off-site training was attributed to a number of factors:

- the off-site training is not practical and unable to be applied to the worksite
- the lack of encouragement or opportunity provided by the host employer
- the host employers' lack of knowledge of the TAFE curriculum
- what is learnt at TAFE does not coincide with the learning undertaken on site

TAFE teachers gave quite extensive answers to justify their very high rating of usefulness for their component of the apprentices' training. These could be grouped under a number of key themes.

The TAFE college was able to provide a non-pressured learning environment for apprentices which allowed them to concentrate more fully on their learning. The environment allowed greater attention to be paid to detail, provided opportunities for practice and the receipt of feedback and a 'safe' place where apprentices could make mistakes without the sometimes costly and dangerous consequences of the workplace.

The wider scope of learning available in the off-job environment was also frequently cited as a reason for the usefulness of the off-site environment. TAFE teachers believed their work with apprentices was essential if the limitations of training in the highly competitive, specialised environment of the workplace were to be overcome. Off-site training assists apprentices to develop an 'industry perspective' which involved them moving beyond the 'rudimentary skills' to develop skills which were 'portable'.

Other benefits of the off-site learning environment that contributed to its usefulness included:

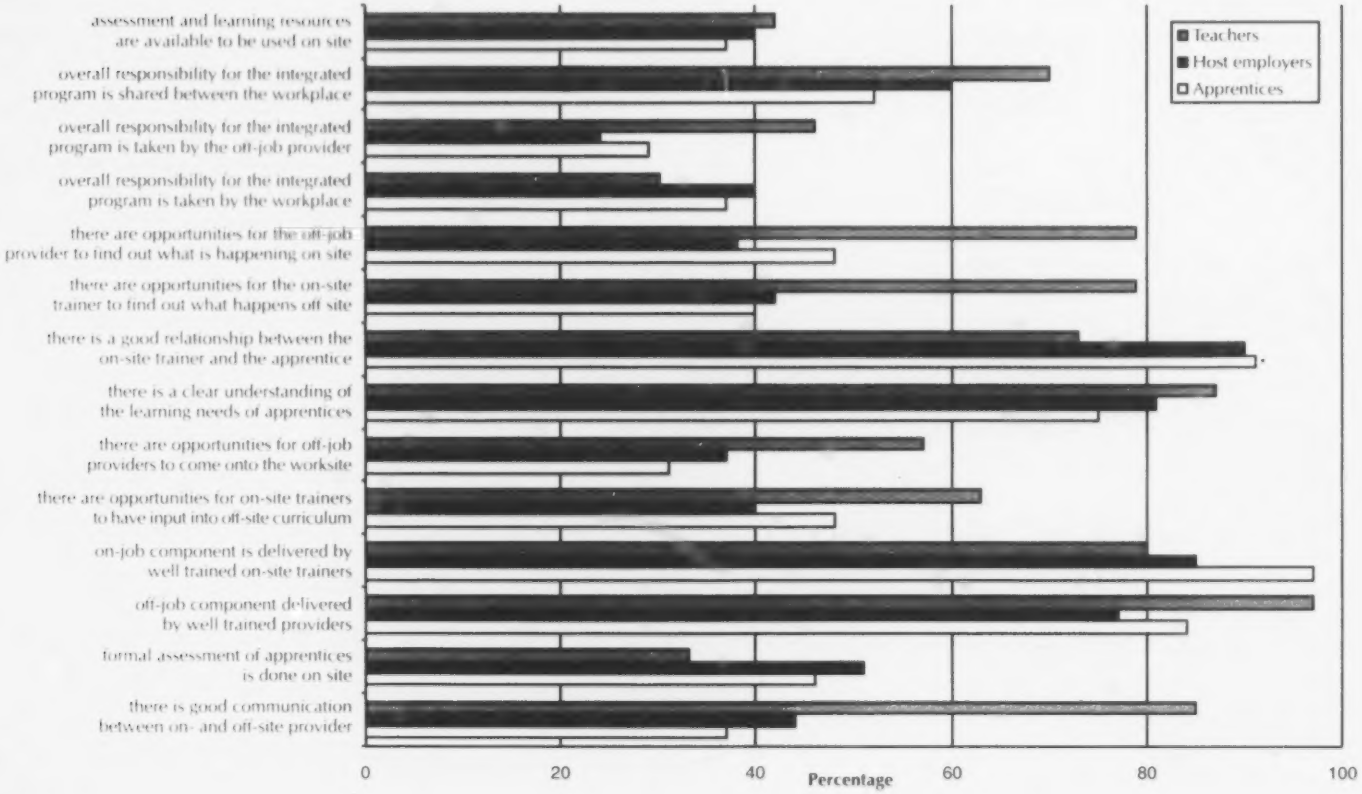
- opportunities to broaden learning by working and socialising with other apprentices
- the provision of a structured learning environment where it could be assured that apprentices achieved the required level of skills
- opportunities to 'make up' for poor quality on-site training which was attributed to factors such as the lack of time employers could devote to training and their lack of ability in training

The complementary nature of the off and on-job learning environments as a justification for the importance of their work with apprentices was mentioned by only a small number of TAFE teachers.

Factors that affect the integration of on and off-job learning for apprentices

A number of factors that affect the integration of on and off-job training were identified in the interviews with apprentices, host employers and TAFE teachers in South Australia. These factors were clustered and presented to their colleagues in New South Wales and Western Australia to rate the importance of each factor on a three-point scale. Complete data from responses to this question for each of the three groups of respondents are presented in terms of absolute numbers and percentages in appendix D (tables D-9, D-10 and D-11), with a summary chart of only the 'important' rating presented in figure 8.

Figure 8: Importance of factors in helping to integrate on- and off-job learning for apprentices


assessment and learning resources are available to be used on site
overall responsibility for the integrated program is shared between the workplace
overall responsibility for the integrated program is taken by the off-job provider
overall responsibility for the integrated program is taken by the workplace
there are opportunities for the off-job provider to find out what is happening on site
there are opportunities for the on-site trainer to find out what happens off site
there is a good relationship between the on-site trainer and the apprentice
there is a clear understanding of the learning needs of apprentices
there are opportunities for off-job providers to come onto the worksite
there are opportunities for on-site trainers to have input into off-site curriculum
on-job component is delivered by well trained on-site trainers
off-job component delivered by well trained providers
formal assessment of apprentices is done on site
there is good communication between on- and off-site provider
Teachers
Host employers
Apprentices
0
20
40
60
80
100
Percentage

Another comparative perspective on these data can be obtained by examining the mean score and ranking of each item. The means were calculated by assigning the following points for each level: 'important' (3), 'of some importance' (2) and 'not important' (1). These are given in tables 12, 13 and 14, along with respondents' judgements as to whether these factors are happening in their own situation at the present time.

Table 12: Rankings, mean scores and extent of application of each factor helping to integrate on- and off-job learning: Host employers (NSW/WA)

Ranking	Factor	Mean score	% of host employers who believe that this factor is being applied
1	There is a good relationship between the on-site trainer and the apprentice(s)	2.90	96
2	The on-site component is delivered by well-trained on-site trainers	2.85	89
3	There is a clear understanding of the learning needs of apprentices	2.81	64
4	The off-job component is delivered by well-trained off-job providers	2.74	60
5	Overall responsibility for the program is shared between the workplace and off-job provider	2.56	41
6	Formal assessment of apprentices' skills is undertaken on site	2.49	34
=7	There are opportunities for the off-job providers to find out what is happening on site	2.36	22
=7	There are opportunities for the on-site trainer to find out what happens in the off-job environment	2.36	25
9	There is good communication between the on-site trainer and off-job provider	2.35	24
10	Assessment and learning resources are available to be used on site	2.33	32
11	There are opportunities for on-site trainers to have input into the off-job curriculum	2.31	7
12	Overall responsibility for the integrated program is taken by the workplace	2.30	45
13	There are opportunities for the off-job providers to come onto the worksite	2.25	13
14	Overall responsibility for the integrated program is taken by the off-job provider	1.96	24

Table 13: Rankings, mean scores and extent of application of each factor helping to integrate on- and off-job learning: TAFE teachers (NSW/WA)

Ranking	Factor	Mean score	% of teachers who believe this factor is being applied
1	The off-job component is delivered by well-trained off-job providers	2.96	91
2	There is a clear understanding of the learning needs of apprentices	2.87	53
3	There is good communication between the on-site trainer and off-job provider	2.83	29
4	There are opportunities for the off-job providers to find out what is happening on site	2.78	56
5	There are opportunities for the on-site trainer to find out what happens in the off-job environment	2.77	46
6	The on-site component is delivered by well-trained on-site trainers	2.75	16
7	There is a good relationship between the on-site trainer and the apprentice(s)	2.72	56
8	Overall responsibility for the program is shared between the workplace and off-job provider	2.65	29
9	There are opportunities for on-site trainers to have input into the off-job curriculum	2.60	25
10	There are opportunities for the off-job providers to come onto the worksite	2.55	38
11	Overall responsibility for the integrated program is taken by the off-job provider	2.35	47
12	Assessment and learning resources are available to be used on site	2.28	14
13	Formal assessment of apprentices' skills is undertaken on site	2.17	8
14	Overall responsibility for the integrated program is taken by the workplace	2.00	11

Table 14: Rankings, mean scores and extent of application of each factor helping to integrate on- and off-job learning: Apprentices (NSW/WA)

Ranking	Factor	Mean score	% of apprentices who believe this factor is being applied
1	The on-site component is delivered by well-trained on-site trainers	2.97	97
2	There is a good relationship between the on-site trainer and the apprentice(s)	2.88	92
3	The off-job component is delivered by well-trained off-job providers	2.79	77
4	There is a clear understanding of the learning needs of apprentices	2.75	70
5	Overall responsibility for the program is shared between the workplace and off-job provider	2.40	44
6	Formal assessment of apprentices' skills is undertaken on site	2.35	39
7	There are opportunities for on-site trainers to have input into the off-job curriculum	2.29	23
8	There are opportunities for the off-job providers to find out what is happening on site	2.28	33
=9	Overall responsibility for the integrated program is taken by the workplace	2.25	45
=9	Assessment and learning resources are available to be used on site	2.25	38
11	There are opportunities for the on-site trainer to find out what happens in the off-job environment	2.23	46
12	There is good communication between the on-site trainer and off-job provider	2.12	25
13	Overall responsibility for the integrated program is taken by the off-job provider	2.06	30
14	There are opportunities for the off-job providers to come onto the worksite	2.03	11

Once again these data reveal the high level of consensus between host employers and apprentices, particularly on their rankings of the five most important factors. There is a low percentage of host employers and apprentices (41% and 44% respectively) who believe that current training arrangements reflect a shared responsibility between the workplace and off-job provider despite their high rankings in terms of importance in assisting with the integration of the sites. This is problematic and symptomatic of the tensions between the two sites that have been highlighted a number of times throughout this study.

Factors which received lower rankings of importance from host employers cluster around them being more active in having input into the off-site curriculum, enhanced communication with off-site trainers and opportunities to interact with off-site trainers. Once again, these lower rankings may indicate that whilst these factors are considered to be

at least 'of some importance' and currently being implemented in some instances, they are the factors which may lead to reduced productivity on site—a situation which employers may not wish to encourage.

Apprentices seem to paint a more optimistic picture than their employers and teachers, believing that most factors which assist them to integrate their learning are being applied to some extent. The notable exception to this is opportunities for their off-site teachers to come out to the worksite. Fewer host employers indicate that they believed the various factors were being applied. However, this may be due, in some part, to their admitted uncertainty about what might be actually happening, particularly on sites other than their own.

Apprentices and host employers rank factors related to shared responsibility, relationships and well-trained personnel in each site. In contrast, TAFE teachers rate factors which reflect the importance of communication ('finding out what is happening') between the sites as being significant in assisting the integration of learning for the apprentices. Teachers also believe that interaction between the two learning sites that is based on a good relationship and sharing of information is important. Apart from confidence in their ability to deliver the on-site component, TAFE teachers believe that most factors are not being applied to any great extent. They feel this particularly about those factors relating to lessening the gap between the two learning sites, such as the availability of on-site assessment of apprentices' skills or the use of learning resources on site.

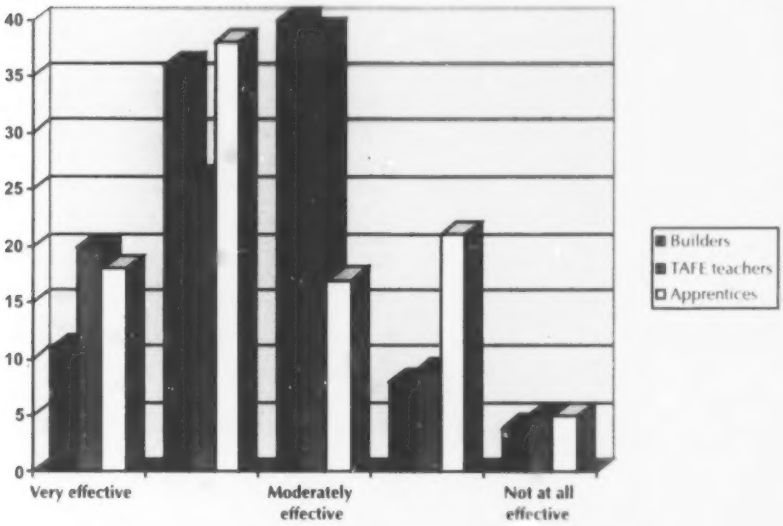
Effectiveness of current combination of on and off-job training

Each of the three groups of respondents was asked to rate the effectiveness of the present combination of on and off-site training for their apprentices. These data are given in table 15 and figure 9.

Table 15: Effectiveness of current combinations of on- and off-job training: Host employers, teachers and apprentices (NSW/WA)

Effectiveness of current combinations	Host employers		TAFE teachers		Apprentices	
	n	%	n	%	n	%
Very effective	8	11	20	20	14	18
Effective	26	36	26	26	29	38
Moderately effective	29	40	39	39	13	17
Only effective to a small extent	6	8	9	9	16	21
Not at all effective	3	4	5	5	4	5
Missing	1	–	4	–	–	–
Total	**73**	**99**	**103**	**99**	**76**	**99**

Figure 9: Effectiveness of current combinations of on- and off-job training



There is a clear lack of confidence in the effectiveness of current arrangements for integrated training. Fifty-two per cent of host employers and 53 per cent of teachers (as well as 43% of the apprentices themselves) rated the effectiveness of the current combination of on and off-job training undertaken by apprentices as being less than effective. A range of different reasons were cited for these views.

The most often cited reason was the impression that what is being taught at TAFE was often out of date and/or lacking in relevance to the circumstances apprentices' encountered on site. This view was strongly reiterated by apprentices who suggested that TAFE at times was boring, characterised by a lack of interest in the on-site environment and the work of the apprentices and often facilitated by teachers who appeared to lack up-to-date knowledge and skills. Host employers believed that the lack of realism in off-site training leaves apprentices with little appreciation of the problems and practicalities of the on-site environment.

Another group of reasons focusses on what was absent from the off-site environment. These included the lack of quality trainers, not enough attention paid to 'the basics'—such as trigonometry and chemistry, or teaching apprentices 'how to organise themselves'—and the lack of opportunity for workplace mentors to have input into what is taught at TAFE.

A smaller group of host employers believed that the effectiveness of the combination of on and off-site learning was affected by some factors which had their origins in the workplace. Once again the lack of quality of trainers was mentioned, along with issues such as the lack of attention

paid to checking apprentices' work. Economic factors within the industry which forced contractors to provide specialised services were seen to impact on the variety of experiences which could be offered to apprentices. One host employer offered the view that:

> *things are changing so quickly that the on-job trainers are getting out of date. We rely on the off-job trainers to train the apprentices in the latest techniques.*

This suggests that the effectiveness of the on and off-job combination is measured by this host employer in terms of the amount of up-date he receives via the training of his apprentice.

Another host employer acknowledged that the nature of his business is a significant factor in assessing the effectiveness of the two environments. Limited on-site opportunities, when combined with the current learning opportunities available at TAFE, do not provide an effective training environment for his apprentices.

> *Our on-site training facilities are minimal and the apprentices have only a limited number of activities to be involved in. There is much duplication of training on and off-site and some areas are not touched on.*

A small number of host employers offered a number of suggestions for increasing the effectiveness of the combination of on and off-job training for their apprentices. These included:

- increased co-ordination and contact between the two sites
- increasing the amount of time the apprentice spends on site
- a greater awareness from both sites of each other's strengths and restrictions as a counter to the suspicion that it is possible we are working in opposite directions
- challenging the notion that 'tech. is a holiday'

Apprentices, because of their unique (and sometimes difficult) position which necessitated movement between the two environments, cited a number of additional factors which they believed reduced the effectiveness of their integrated training arrangements. These included:

- poor teaching/training from both TAFE teachers and host employers
- the lack of relevance of TAFE work to the realities of the workplace
- the lack of interest shown by both employers and TAFE staff to each other's environment including a lack of knowledge about what happens in each
- some apprentices' lack of interest in TAFE
- the absence of effective communication between the two learning sites
- a poor working relationship with the host employer

- the challenge some apprentices face in reconciling the differing expectations held by TAFE teachers and their host employers
- the need for apprentices to be absent from the workplace, often for extended periods (particularly in the case of apprentices in regional areas) to attend off-job training
- the continual clash between the pressure for apprentices to be productive in the workplace whilst learning their trade

These factors, to a large extent, reflect the tension between the roles of 'worker' and 'learner' which the apprentices constantly felt and needed to juggle in order to meet the expectations of both teachers and employers. Clearly, the apprentices felt that they were primarily responsible for reconciling the two worlds of on and off-job learning.

There were significant minorities of host employers (47%) and teachers (46%), however, who believed that the current combination of on and off-job training was 'effective' or 'very effective'. The most often cited reason for their confidence was based on the view that 'they complement each other well, with one providing the practical skills and the other drawing, figure work, etc.'. In some instances, the high rating of the effectiveness was given with reservation, suggesting that effectiveness might be improved by 'increased communication' and 'greater integration'. More general comments suggested that much needed to be done to improve the training provided for apprentices.

From the TAFE teachers' perspective, the most significant factor influencing the effective integration of on and off-job learning for apprentices was the lack of co-ordination between the two sites. Given that most host employers were running small businesses in a highly competitive industry, some respondents doubted that this could be remedied. This fact also contributed to the view that effectiveness was further reduced by employers' unwillingness and/or inability to supplement off-job learning with opportunities for further skill development, practice and general support for the apprentice in their role as learner.

A small number of TAFE teachers attributed the lack of effectiveness in integrating learning from the two sites to certain characteristics of the apprentices. These included apprentices' inability to cope with learning in a classroom environment, their lack of self-esteem or simply that the apprentices 'were in the wrong job'.

From the TAFE teachers' viewpoint, other factors which reduced the effectiveness of integration between the on and off-job sites included:

- the reduction in the amount of funds available for training at TAFE
- the lack of coincidence in learning the same things on each site at the same time
- the limited time TAFE teachers have to work with apprentices

Conclusion

In many instances, the experiences of the apprentices, host employers and TAFE teachers from Western Australia and New South Wales match those of their counterparts in South Australia. Data support the notion that both the on and off-job sites make different, but valuable contributions to apprentices' learning endeavours. But, more importantly, the survey data reinforce the difficulties that can be encountered in attempting to integrate these two learning sites. The survey data also reinforce the conclusion from the South Australian data that current approaches to integrating learning from both sites is not as effective as it might be. A considerable proportion of respondents from all groups indicated they were less than satisfied with current arrangements.

Vested interests of both host employers and TAFE teachers are quite apparent in responses to questions about how each sees the other's learning environment and their role in relation to facilitating learning for their apprentices. These data, once again, reinforce the difficulties in reconciling the two environments and the sometimes difficult position which apprentices occupy as they move between the two learning environments.

Having explored the views of apprentices, teachers and host employers in a number of different contexts, the next section of this report begins to summarise the key findings of the research and to draw the implications of these findings for policy, practice and research.

11 Learning and facilitation theories in practice

In chapter 4, the three research objectives for this study were presented as follows:

- analyse the relative contributions of the workplace and provider environments to the learning of apprentices
- explore how they might best complement each other for the benefit of apprentices
- identify the enabling factors and barriers to establishing integrated models of training

Each of these was further articulated into a number of research questions. Now that the learning environments constructed on and off the job have been depicted, and the learning experiences of the apprentices in these environments have been analysed in some detail, this final section of the report focusses on some implications of the findings.

This final section (chapters 11–13) serves to 'ground' and 'build on' many of the ideas that initially sprang from the story of Mario (chapter 1). These ideas, were opened up in the context section (chapters 2–4) of the report and further explored through the three middle sections (chapters 5–10) with original data from the apprentices, host employers and teachers. This final section of the report is, in effect, the researchers' interpretations of the data and the meanings of the findings for interested stakeholders.

Chapter 11 now addresses the implications for learning and facilitation of the theories-in-practice of the three main groups of participants—apprentices, host employers and teachers—and, in essence, builds on the context introduced in chapter 3. In that chapter, a number of theories of learning and training were explored. This chapter strives to locate the ideas and theories of the host employers, TAFE teachers and apprentices—as they emerged in the interviews—within these categories in order to see what kind of 'fit' is emerging between the three stakeholders in this research project.

Implicit theories of learning

Theories of learning and facilitated learning that can be derived from the interviews with the three participant groups display a common element that learning is about gaining and improving skills. The TAFE teachers' theory of learning tended to be expressed as the gaining of competencies which was an elaboration of the skills theory of learning. The apprentices and their building mentors included the notion of 'becoming' in their idea of learning. However, none of the three participant groups, except for a single comment from one or another host employer, seemed to have a critical dimension to their idea of learning.

There was a noticeable difference in ideas underpinning the aims of learning between TAFE teachers and the host employers. The competency discourse had given the TAFE teachers a broad sense of the aims of learning to gain knowledge and skills. The host employers made more of the notion of learning's aim as 'taking on the culture' of the trade—learning how tradespeople behaved, what they wore, how they saw the world. Within the parameters of this cultural objective was some room for critique. There was an additional goal of learning which was to discriminate—a form of critique. The values linked to this critique tended to be concerned with the building trade and circumstances surrounding it.

Theories of the style of learning vary as much among host employers and among TAFE teachers as between the two groups. A large number of host employers pushed the notion of depth implicitly in their idea that there is a 'right way' to work and one needs to make sure the work is 'done properly'. Moving from Biggs' ideas of deep, surface and achieving learning, the host employers' theory seems to incline towards deep learning in the kind of knowledge that enters into the learners' bones so that they are in a permanent state of knowing. TAFE teachers had an implicit sense of 'learning as performance' linked to the competency approach. This tended to play down the idea of depth learning but to highlight self-directed elements.

The host employers, by contrast, tended to favour a style of learning which was dependent on their direction and expectation. This difference in learning theory tended to be noticeable. The TAFE teachers, working with modules and encouraging apprentices to take charge of their learning and to work their way through the modules, tended to encourage a more self-directed style.

The apprentices themselves showed a development in their theories through the interviews. Apprentices early in their training tended to speak of their style of learning as other directed and achievement oriented. They were conscious of being shaped or taught/trained by their TAFE teachers and the host employers they were working for.

Their learning, as the interviews showed strongly, was perceived as mixed in with the struggles of meeting different sets of expectations. This meant a kind of blurred theory of learning which linked it closely to living and working. The notion of learning blurring in with living and working suggests a focus on learning by facilitation—another theme in this research.

Implicit theories of learning facilitation

The implicit theories of learning facilitation held by host employers and TAFE teachers are linked to the three ways in which facilitated learning can be pursued—formal, informal and incidental. It appears, in addition, that some apprentices see much of their learning, as it were, as incidental to the core business of collaborating, keeping out of trouble and getting work finished.

For the TAFE teachers, offering education which is award based and exportable, the formal category is appropriate. TAFE education is a good example of formal education with its constraints and benefits.

Host employers offering on-the-job training, while engaged in collaborative work with their apprentices, manifest an incidental theory of learning facilitation. In addition and less often, many host employers in drawing out the learning implicit in a particular event are manifesting an informal theory of learning facilitation. If the host employer takes time to instruct an apprentice in a specific skill—the working of a specific machine or the use of different welding rods—they are non-formal learning facilitation. In general terms, the host employers demonstrated a preponderance of incidental learning facilitation theory with some application of informal learning. The foundation of this major difference can be seen at the beginning of chapter 9 where the approaches to learning are placed side by side.

The closed and open-ended continuum discussed in chapter 3 tends to separate the formal from the informal and incidental learning theories. When TAFE teachers using competency discourse focus on a particular learning outcome and develop learning experiences to meet that outcome, they are working from a closed theory of learning facilitation.

The host employers, in their incidental and informal learning facilitation theories, tend to have an open-ended, almost retrospective, approach to learning facilitation. The learning outcomes are many and may depend on the disposition and prior knowledge of the apprentice. The language of 'picking things up' 'watching', 'getting into the swing of carpentry' and 'getting the feel' all tend to indicate an open-ended theory of learning facilitation.

The apprentices, judging from their interviews, tended to have an unfocussed idea of learning at the beginning of their training. Their theories of learning facilitation tended to be fairly context specific: focussed and pro-active at TAFE, and open ended and retrospective on the job.

The apprentices gained maturity and a 'map' of the learning required to become a successful host employer began to emerge. As this occurred, their re-active theory of learning became, in some cases, overlaid with a more focussed and closed notion where learning facilitation meant being shown a specific building skill or angle. This was sometimes linked to the idea of facilitated learning as sharing trade secrets.

The third perspective on theories of learning facilitation—directive and non-directive versions—is again not easily separated out within the discourses of the three participating groups. In general terms, TAFE instruction tends to be built on a rather directive theory of learning facilitation. TAFE teachers in the course of their instruction, particularly when using the competency-based approach, tended to espouse a non-directive theory when referring to the 'when' and 'how' of the learning. The 'what' was usually directively defined.

The host employers in their discourse often had a highly directed theory grounded in their own practice. A recurrent idea of learning facilitation in their interviews was about 'showing the apprentices the right way': showing them, then watching while they did it to make sure they were doing it correctly. A small number occasionally spoke about showing them but letting them make up their own minds, indicating some sense of self-direction in their theory of facilitated learning. This rare comment was linked to the way one host employer managed his experience of difference when the apprentice proposed an approach learned at TAFE which differed from the boss' approach.

The apprentice learning theory tended to see facilitated learning as something directed. Apprentices felt understandably that they had to fit in, to do what they were told—in TAFE, 'book' learning; and on the job, action learning.

The sponsoring institution, the Housing Industry Association (HIA), had a stronger idea of self-direction in their theory of facilitated learning and encouraged apprentices to be assertive and self-directed in maximising their learning opportunities.

As apprentices moved through to the third and fourth year, their theory of facilitated learning moved to a more non-directive, opportunistic system. In this case, learning facilitation is pursued more by making opportunities which the apprentice can then take up according to their own priorities and style.

Ideals of learning facilitation

Behind these more grounded theories of learning and learning facilitation are the classic ideals which inform individual instances of learning facilitation.

TAFE teachers tended to manifest the more conservative theory of facilitated learning outlined by Brundage and MacKeracher (1980) and mentioned already in chapter 3. Such a view of learning facilitation required citizens to share a body of socially validated knowledge, values, skills and be sympathetic to a more positivistic view of learning as a process of gaining defined knowledge and skills.

The host employers shared this philosophy, particularly when presuming that the apprentice was, as it were, a carpenter in the making and should know all that a carpenter needs to know. However, there was another theoretical stream which was usually linked to the liberal idea and which seemed to view the apprentice as not yet arrived and possibly not going to. Many of the host employers, perhaps more strongly than the TAFE teachers, were aware of an uncommitted dimension to the apprentice and had sometimes referred to the need to respect the apprentice's freedom of choice. This was not a strong view but it underpinned some of the occasional tension between the host employer (really wanting a committed off-sider and having hired a learner) having to be conscious of the apprentice leaving or changing their allegiance during the time of training.

There was a third, again somewhat muted, stream in the host employers' general theory of facilitated learning which embraced a more holistic theory of learning corresponding to Brundage and MacKeracher's third category. This occurred when the host employer began to regard the apprentice almost like a son, or in one real case a daughter, and to share values about building within the lived social context of the broader world.

The apprentices' interviews manifested a conservative theory of learning facilitation in the early years of their training but without necessarily too much real awareness. There was, however, some recurrence of liberal theories of facilitated learning built into their sense of fulfilling their own career and vocation, which tended to surface particularly in times of tension and self-doubt. There was little evidence of the theory of facilitated learning which stressed social responsibility.

Operational theories

The operational approaches of the three participating groups revealed considerable overlap. The TAFE teachers using the competency modules with careful support were using a largely behavioural approach to learning facilitation. Joined with this was an interest in problem-posing

and solving which called for a more cognitivist approach. A number of TAFE teachers, since the competency movement had tended to make them considerably less instructors and more learning facilitators, had embraced humanistic theories of learning facilitation and stressed trust and respect between the teachers and apprentices who were working their way through various modules.

The host employers tended to favour a largely behavioural theory of learning facilitation. One showed apprentices what needed to be done; after they had done it, the host employer praised their correct performance and corrected their unsatisfactory activities until the apprentices were producing the desired result. From this perspective, the host employers viewed facilitated learning largely as a measurable, assessable behaviour.

This general picture admitted considerable variations. A few host employers used a problem-posing approach which challenged apprentices to think, judge and work out appropriate action through detailed and planned learning. Others adopted a *laissez-faire* approach, leaving it to apprentices to avail themselves of learning opportunities. This approach could be based on humanistic removal of barriers to encourage learning, or it could be the particular host employer's refusal to help.

The apprentices themselves tended to adopt a behaviourist and cognitive approach with elements of humanism thrown in. In the first place, apprentices entered highly behavioural arenas where their learning was framed in terms of good or bad performance. This was similar in TAFE and on the building site.

Some apprentices found they were being forced or encouraged to think things out to see how they could construct and critique their own knowledge. The term, 'cognitive apprenticeship', used by Collins, Brown and Newman (1989), has some relevance to the whole orientation process which some apprentices began to adopt. In this case they monitored and attempted to improve their own approach and motivation to their learning tasks after a discussion with their HIA mentor.

In the final categories of facilitated learning mentioned in chapter 3, there is a distinction between self-initiated and other-initiated learning and its links to degrees of self-direction. One of the characteristics of this distinction is that, at some point in many apprentices' training lives, they begin to initiate learning projects. They do this because they are impelled particularly by a consciousness of not knowing this or that, and realising that before long they will be on their own and it will be much more difficult to ask for assistance.

Conclusion: In search of theories of integration

This is a brief summary of the theories of learning, learning facilitation and facilitated learning implicit in the interviews with the TAFE teachers, host employers and apprentices. It brings to the foreground the theoretical bases for much of the considerable disparity of values and approaches in the different learning environments.

Learning and learning facilitation theories are implicit in the off-job programs taught at the learner's pace with provision for discussion and questioning. Compared with those theories implicit in the on-job training pursued within the confines of work deadlines, off-job learning theories are hugely divergent and yet overlap and can be useful and even complementary.

What emerged clearly from the interviews was that each set of providers had developed ideas and theories of learning and learning facilitation to match their particular world of TAFE institute or building site. What was significantly absent was generalised reflection or theory building about the integration of the two kinds of training. While there was a range of practical comments, there were very few developed ideas or theories of integrated training. It was being left by default to the apprentices themselves to develop and that was hard, especially in the early months of training.

The apprentices, when the programs in the different environments are more or less in sequence, coinciding and in harmony, seem to benefit greatly from both worlds. The degree of fit means that their own learning theories, which tend to be fairly reactive to the environments provided, will elaborate and spread to include broader agendas. Conversely, where the programs are out of sequence, do not coincide or are in conflict, it appears that they will generate too much static and the apprentices' learning theories will reduce to minimal surface approaches driven by the need to survive. The significance of integration of learning programs cannot be too highly emphasised if the apprentice, like the pelican, is to lift from the waters of the training lagoon and become a mature, high-flying artisan.

12 Implications for policy, practice and research

The previous chapter addressed the implications for learning and facilitation of the theories-in-practice of the three main groups of participants in this study – apprentices, host employers and teachers – and built upon the context introduced in chapter 3. This chapter now concentrates on the implications for training policy, practice and research emerging from the findings, and thus links integrally with the context introduced in chapter 2.

Some policy implications

Integrated training: Collaboration between on-and off-job sites

One of the fundamental issues raised by this study—in fact, inherent in the very title of and initiating idea for this research—is the value or otherwise of apprentices learning in both on and off-job environments. To what extent is it necessary to have both environments when they are so clearly different from each other? The findings in this study indicate that both types of environments make valuable, but different, contributions, to apprentices' learning. This report therefore strongly supports the need for both learning environments. However, there are two caveats to be made.

Firstly, increased attention to supply (off)-demand (on) collaborative arrangements is required. Hayton (1997) has highlighted the diversity in training demand and has recommended an industry-by-industry approach by government authorities to the identification of training demand. This study would concur with that recommendation.

Secondly, this study has underlined the need for the notion of integrated training to be unpacked with care. The research has not so much queried the assumptions underlying integrated training *per se*, although these assumptions have been investigated in some detail by the very design of the study, as questioning how it happens.

Like the concept of competency-based training, the notion of integrated training means many things to many people and, politically, is usually embedded within definitions of competency-based training. Almost all interpretations, and initiatives, have focussed on structural arrangements. But, as discussed in chapter 9, the notion of integration also has an individual dimension, and in this case refers to the synthesis process occurring—or not occurring—inside each apprentice's head and heart. Integration, to be effective, calls *inter alia* for a unified, collaborative approach by all sponsors which is publicly known by all concerned, including the apprentice, so that there is the greatest possible coincidence of on and off-job activities and experiences.

Press towards workplace training

National moves towards the encouragement of and greater emphasis on workplace training are no doubt perceived to be beneficial. This is because it is felt that the on-job learning environment is more naturalistic, authentic and relevant to the training of future tradespeople than the institutional learning environment. However, there is also no doubt that they are politically inspired and driven primarily by cost-saving intentions in this current economic-rationalist climate. In this respect, the concomitant risks need to be identified, recognised and addressed.

Billett, Scribner and Sachs and others (see chapter 2) have drawn attention to some of the drawbacks to worksite-based training. This study highlights that the quality of the on-job learning experience is, to a very large degree, dependent upon the workplace mentor—their enthusiasm, contemporary knowledge/skills, standards, values and mentoring skills. Most host employers in this study would not categorise themselves as workplace 'trainers', nor even as workplace 'assessors' (and hence we refrained from calling them trainers or assessors in this report). Many did not have the skills, knowledge and attributes to be trainers and assessors, nor did they particularly want them—their goals and motivations were focussed in a different direction. Significant professional development activities would be needed if more reliance were to be placed on the worksite as a learning (and assessing) environment.

Thus national moves in this direction require very sensitive monitoring. The increasing emphasis and value placed on the on-job, and the concomitant decreasing emphasis and value on the off-job environment, has the potential if the pendulum swings too far to result in narrowly conceived practices. These may serve the immediate requirements of individual worksites but not the longer-term needs of the industry nor the apprentices themselves. What may result is only 'just-in-time' learning (learning predominantly acquired on the job that is appealing because of its immediacy and relevance) without the reinforcing of 'just-

in-case' learning (learning predominantly acquired off the job that is more long term and for future application). Other studies have also confirmed that workplaces tend to favour the development of procedural knowledge over propositional knowledge.

Small business environment

The small business environment continues to remain an enigma for the national training reform agenda, as this type of environment is very different from those in medium or large businesses. This study has revealed some of the difficulties of training in such environments, and it is not surprising that small business has largely ignored, or remains largely ignorant of, the training reform agenda. Small business is not in a good position to be very interested or to partake in training initiatives. The increasing press towards specialisation to survive and the inclination to see training as an expense rather than an investment, when coupled with a mobile workforce, does not predispose small business towards training for its own sake. As Firebrace (ANTA 1995) intimates (see chapter 2), the smart move is to buy in expertise from the labour market, not to train for it.

This study has focussed only on situations where host-employers have taken on apprentices, and it shows that the small business environment has its benefits but also its drawbacks and limitations. There is anecdotal evidence from this study that there are many more potential host employers who have not taken on—nor will they take on—apprentices because of the perceived financial and relationship problems inherent in that process. The continuing difficulty in fathoming and appreciating the small business environment and government's continuing and intense interest in attempts to promote training in this environment generates a tension that demands close monitoring and, indeed, questioning.

Role of public and private providers

What the role of training providers is likely to be in the future within the climate of an open training market and under the national policy of 'user choice' from the beginning of 1998 is an open question. If the press towards workplace training has problems particularly in industries where there is little tradition of training, there may lie a window of opportunity for both types of providers. Certainly there will be increased competition for TAFE which has been for a long time the preferred provider of off-job training, particularly in the context of this study for apprenticeships in the building and construction industry (see chapter 2). This competition is expected to force providers generally to be more responsive to industry needs, as industry takes on more itself where it can, and where it cannot, will be looking for support—but what will be lost in the process? A long-established system of on and off-job training arrangements and relationships? A diminution in the number of personnel educated and

qualified as teachers, in favour of personnel trained in three-day courses to be trainers and assessors? An increase in part-time trainers and a decrease in full-time educators? What effects will these and other changes have on quality assurance?

This study has highlighted, at least from the perspectives of the host employers and especially the apprentices, that increased competition will be a positive force if it succeeds in stimulating off-job providers to be more responsive, relevant and up to date in content. For example, within TAFE, it reinforces the urgent need for policy initiatives directed towards technical update for teachers and increased collaborative arrangements with industry.

Industry associations, such as the HIA, will under 'user choice' policy be able to choose their off-job provider(s). They will be able to have choice of provider and choice over aspects of the delivery of training, its location and timing. There is the potential here for increasing the relevance and contextualisation of training. In the case of the industry partner in this study, will the HIA become a registered training organisation and choose itself? It would be able to do so, and to do more training and receive public funding as the provider of choice. If this were to happen, there may be a potential conflict of interest as both employer and provider. This is an issue that will need careful thinking through—what implications lie ahead for the future role of such industry associations and their relationships with training providers? What are the implications for the traditional partnerships with TAFE in particular? In this scenario, and many others analogous to it, there are implications for the future roles of industry associations (such as the HIA) and training providers (such as TAFE), and for the short and long-term relations between them.

In the present political climate, too, there are implications for the roles of schools if, as expected, they are to play a more active part in vocational education and training. Depending on who exactly is to be responsible for this training in schools, lessons learned from this study on the relevance of training content and the closeness of collaborative linkages need to be heeded. Moreover, both Resnick (1987, p.17) and Gott (1994, p.1) have sounded a warning here from American experience. They show that the rise of the vocational education movement in schools has too often meant that hands-on practice and coaching were replaced by traditional, didactic instruction: 'as the ideology of expanded schooling took hold and the nature of the workplace changed, we gave up opportunities for learning in the workplace in favour of school-based vocational education'.

Role of preparation and induction programs

There is evidence from this study that those who had undertaken some form of prevocational pathway prior to entering apprenticeship were able to be more productive at the worksite earlier than those without such a

background. Such institutional training prior to site work also enabled the apprentice to take optimum advantage of the positives of off-job training identified in this study. These positives included conceptual understanding, occupational health and safety, basic skills, work standards and codes. For both of these reasons—earlier productivity at work and more solid grounding in knowledge and basic skills—those host employers who had an apprentice with such a background were appreciative of this headstart.

To be able to juggle the roles of worker and learner, apprentices in this study needed to develop a repertoire of learning skills which enabled them to learn in a variety of ways. This sometimes occurred under close supervision but more usually with limited direction and instruction that is very much shaped by the immediate needs of the small business. These skills need to be coupled with some of the basic trade-related skills which allow them to make a positive contribution to the business almost immediately they commence their employment. Some apprentices took time to develop the types of skills which enabled them to function in these roles at a level that was satisfying to themselves and the host employer with whom they were working. Greater emphasis needs to be placed on the ways in which learners are prepared and inducted into an integrated training program which relies heavily on small business as the predominant learning environment.

The findings of this study therefore support the notion that an institutional foundation (whether in the form of a prevocational program or otherwise) prior to worksite experience is an under-utilised and often unfairly maligned pathway. It is acceptable to host-employers and is beneficial to the early development of learners as competent tradespeople.

Rotation of apprentices

The evidence from this study is that some rotation is beneficial but too much is detrimental. On the one hand, too little rotation does not allow for sufficient exposure to alternative sites to acquire experience on different jobs in different contexts—it is a healthy antidote to over-specialisation. Neither does it permit the useful mechanism of providing a safety valve for personality clashes. On the other hand, too much rotation runs the risk of destroying relationships established between apprentice and host employer mentors and workmates, and putting additional stress on apprentices who have to get to know, and be accepted by, a range of bosses and workteams. It can also lead to the necessity for 'unlearning', which apprentices in this study claimed was one of the most unhelpful facets in their on-site learning (chapter 7) and in their attempts to integrate learning from different sites (chapter 9).

This study has shown that it is from stable and committed relationships with site personnel, especially the host employer, that learning is most likely to occur, both formally and informally. The 'in for the long haul'

factor provides a far stronger incentive for the workplace to train than does the 'fly-by-night' sentiment.

Rotation is presumed a good thing (Butcher 1995; Donaldson 1995; ANTA 1997, p.16) and, under current government policy, group training schemes are expected to increase (see chapter 2). This study demonstrates that such schemes are an important means for initiating and maintaining the training of apprentices in very small business contexts such as much of the housing industry. However, in the light of this study's findings on the importance of on-site relationships to the learning process, such a government policy requires careful monitoring in different industry contexts and such rotation programs need to be carefully planned and structured.

The importance of developmental time

Time is important for the development of autonomy, confidence, competence and self-direction of apprentices. To grow from novices to experts, they need space to become more discerning in their learning of materials, techniques and general information, and to develop the ability to synthesise their own ways of working and relating. This study has shown how the apprentice undergoes this development over the four years of the apprenticeship, not only developing as a skilled host employer but, most importantly, also as a skilled learner. In the long haul, within a changing environment—technologically, politically and economically—such development as a lifelong learner is essential.

The significance of developmental time is frequently downplayed, even sometimes ignored, in policy as well as in practice. The captivating appeal of short-term solutions in training and in professional development often results in thinking that is seductive in perceived advantages, such as reduced duration, decreased cost and 'just-in-time' learning. However, these ultimately fail to generate the firm foundations required for competent and confident graduates who will continue to be self-directed and lifelong learners beyond those courses. The underplaying of developmental time may well sacrifice quality and long-term foundations. The outcomes of policies that promote such thinking require careful monitoring for these reasons.

Some practice implications

Awareness that learning is a negotiated experience

No matter what grandiose and well-intentioned structural arrangements are put in place, those who construct learning environments need to be aware learning is negotiated rather than fixed. This study has shown that apprentices take in what they will when they want, that they will learn what is relevant to them at the time and do it their way, irrespective of, or

despite, the best intentions of host employers or teachers to construct certain types of environments. Learning environments are dynamic and ever-changing. They result from living relationships shaped almost daily, and what occurs within them is negotiated and re-negotiated regularly. They are not fixed entities, constructed only by those with power. They are moulded also by those without power. The apprentice lives in a contested world, and learns that very quickly. Mario soon learnt that he had to make his own reality (chapter 1).

Recognition that work and learning shape each other

A defining characteristic of on-the-job learning, in clear distinction from institutional learning, is that it is learning embedded in ongoing work activities. Training and learning occur simultaneously with getting the job done, or as Scribner and Sachs (1990, p.11) graphically put it, 'analytically, two activity streams are in progress, but empirically there is only one stream of behaviour to observe'.

Training and learning shape each other. In this study, the shaping process was assisted by the fact there were no explicit training plans, the host employers had no trainer training, there was no 'set curriculum' and there was mostly no formal testing or accountability. Training on site therefore took shape as host employers made somewhat *ad hoc* decisions based on work availability, traditional practice, their own personal 'theories' of training and learning, and pragmatic considerations (refer to chapters 3, 5 and 11). Judging from the reactions of most apprentices, it is significant that such seeming spontaneity and serendipity did not constrain the effectiveness of the learning environment to the degree where disadvantage was felt. For at least this level of skill development (and recognising that there was also the off-job component for other types of learning), it would appear that these virtually 'accidental' and *ad hoc* experiences were considered a powerful educative practice. The embeddedness of learning in working, and the resultant shaping of each other, makes for a potentially fruitful learning environment.

Close collaboration between on and off-job environments

There needs to be close collaboration between on and off-job sites for effective integrated training. But exactly how workplace learning can be integrated with off-the-job learning is an open question. Gonczi (1996, p.4) advocates the best way might be to have trained teachers working inside arenas of practice, where the difference between on and off-the-job training becomes blurred. Yet in his view there is little evidence that this approach to learning (as he describes it) is widely understood even by trained TAFE teachers who have extensive workplace experience, let alone by school teachers and industry trainers.

With larger businesses, having an off-job provider such as TAFE on worksite seems to be a key characteristic of good practice in the literature. One example (cited in chapter 2) is the Housing Industry Youth Employment and Skills Training Program. First piloted at Liverpool in New South Wales in 1992, it had expanded to embrace six States and Territories and 17 group training companies three years later (Quinn 1995, pp.472–473). A key feature of this program is the delivery of TAFE formal 'classroom' training on site and the use of trainers providing practical instruction on site.

Such arrangements are far more problematic in the case of small businesses as in this study, and highlight the significant role that can be played by group training schemes. In this study, however, the role played by the HIA could have been far more co-ordinating and mediating. Closer monitoring of the learning of their apprentices—their employees—may have greatly assisted not only the learners in integrating their learning experiences from the different sites, but also the nature and extent of co-operation between the personnel in the on and off-job environments.

What we can say from our study is that an important factor in effective collaboration is the clear delineation of roles and responsibilities between partners—in this case, the HIA, the worksites and TAFE. This study has revealed that these were not always clear to participants and that tensions often arise as a consequence. There was little evidence of contact, or even communication, between the parties (chapters 5 and 6). Chapter 10 in particular has highlighted different perspectives on this issue, and reflects the significance of dialogue and resolution if close collaboration and effective integrated training are to be outcomes.

What is needed are greater efforts in building 'learning communities' where all learn from one another and all are pro-active in learning. There were glimpses of this occurring in this study, as in cases where apprentices were informing host employers about what they had learnt at TAFE, either voluntarily or when asked by the host employer. In addition, teachers were picking up from apprentices any latest ideas on methods and materials from the workplace. The significant insight here is that the apprentice evidently plays a very important role as a conduit in the informal professional development of both teachers and host employers.

Workplace culture is a strong influence on apprentices

The apprentices very early and readily assimilate the worksite culture, which frequently has as central tenets that theory is not worth having, learning off job is bookish and teachers are out of touch with the real world of industry. In contrast, they spend most of their time on site

where they are receiving substantial reinforcement of their on-job work as the 'real' work, that which is what is relevant to their career and earns them their pay-packet. This study has shown how the apprentices tended to take on the identities of their workplace host employers, even to the point of dressing and speaking like them. They pick up derogatory comments and throw-away lines about off-job learning.

From the first day on site (and often long before that, in the case of some apprentices who work with their relatives), apprentices gain experiences which, if acknowledged by both on and off-site trainers, provide a valuable seedbed for learning. In the case of the apprentices in this study, the seedbed was often overlooked, and sometimes even damaged in attempts by host employers and teachers to mould and shape the apprentices into what they perceived was required for the business or the industry.

The strength of the vocational workplace culture generates a change in the apprentices' perspective (Mezirow 1981, 1991). They are in the process of moving from the single role of (most commonly) a full-time school student to the dual roles of 'worker' on site and 'learner' off-site. This shift brings with it many changes. Their 'meaning perspectives', which comprise the cultural and psychological assumptions which influence the way they perceive themselves and their relationships and the way they pattern their lives, are being shaken. Doing work, earning money and building relationships with their host employer and site workmates all lead to a gradual restructuring of their conception of reality. They have rites of passage to navigate, worksite pecking orders to assimilate, and customs and traditions to learn and observe as they are introduced to the vocation of building. Such movement is a difficult process that can involve negotiation, compromise, stalling, back-sliding, self-deception and the possiblility of failure (Mezirow 1981, p.8).

This transformation process causes them to view 'going back to school' (that is, TAFE) in a very different light. Tension is very likely to result given the strength of the workplace culture and the amount of time they spend in that environment. The scales are naturally tipped in favour of the worksite. Such tension is very likely to be increased to the degree that TAFE teachers do not recognise these changes in perspective. They treat their charges as adult workers and learners (rather than 'students') in an adult environment (rather than 'a school classroom') with facilitators (rather than school 'teachers'). The learning environment may be like the school environment that they have left behind, which for many of these apprentices may not have been a relevant or enjoyable experience. If this is the case, there is likely to be a turning-off, whether consciously or subconsciously, from genuine learning as a consequence of their change in meaning perspective.

The construction of such an adult learning environment and adoption of a facilitative and mentoring stance is more difficult for the teachers than it is for the host employers. The host employers begin with the advantages of the real-world worksite, more time and (usually) one-to-

one contact. In contrast, the teachers have the classroom/simulated workshop, short blocks of time and a class group of apprentices from many different sites and employers. It is clear that off-job providers (in this case, TAFE) start behind the eight-ball in terms of earning respect for what they have to offer, in the face of continual bombardment from the worksite. In many ways, the worlds are collaborative—or at least have the potential to be so. Yet so often in reality the broader knowledge and range of different practices available from the off-job learning environment are deliberately ignored and therefore devalued.

The importance of relationships

One of the most important keys to effective learning at the workplace is the quality of the personal relationship between the apprentice and the worksite mentor. An important question in this respect is: what do host employers take on when they engage apprentices? The answer from this research is that such engagement involves far more than development of technical skill. It also implies personal growth and small business management, and values inculcation and promotion of key competencies, especially teamwork and the capacity to work (and learn) alone. All this requires a firm foundation for a solid relationship of mutual respect and trust, and a strong commitment on the part of the host employer to nurturing and coaching.

This study found that the TAFE teachers often doubted whether the host employers had such commitment beyond their pay-packets. It was one of the prime reasons why they advocated for the off-job component, as they saw themselves in a position to be able to provide what they saw the on-job site could not, and to be the 'professional' instructors (chapter 6). To what extent is this a projection of their own anxiety in the face of current moves to downplay institutional education and to foreground workplace learning? To what extent is it a genuine response, given that the teachers are the ones who, in addition to having been host employers in former days, are also the trained professional educators and who, in all probability, went into teaching as a career change because they were motivated to help learners learn? These are indeed moot points. Mario discovered his relationship with Sam to be very important but, significantly, came to this realisation only after experience of moving elsewhere at his request to the HIA (chapter 1).

Conditions enhancing learning at the worksite

There are many conditions that enhance workplace learning. Chapters 5–9 show evidence that supports many of the key aspects given in the literature, reviewed in chapter 2. For example, 'guided apprenticeship' (Billett 1993) involving such processes as modelling, coaching, scaffolding and fading plays a significant part in the learning of apprentices. The research reinforces the role of the workplace mentor as the most critical factor in worksite learning.

Another important ingredient is 'planned rotation' (Hayton 1993, p.8) in which apprentices are provided with structured learning experiences that increase exposure to a wide range of work. Yet another is the 'spiral of increasing responsibility' (Kornbluh & Greene 1989, pp.260–263) where the apprentice is engaged in learning experiences progressively over the years of the apprenticeship leading to increasing self-direction and sense of 'becoming'. Still another is the creation of 'environments conducive to learning' (Taylor 1996), which was not always evident in this study in either learning environment but which is nevertheless central to effective apprentice learning. Also, 'support and genuine commitment' (Harris & Volet 1996), where this was in evidence in the relationship between apprentice and host employer, was a vital factor in providing motivation and promoting learning in the workplace.

Our research has attempted to probe more deeply than some of these general notions to identify and describe some of the factors helping and hindering on-job learning (refer to chapter 7 in particular). In summary, the factors 'helping' learning were previous knowledge and experience, opportunity to practise skills, opportunity to observe and listen and permission to make mistakes, the personal orientation of the apprentice and that of the host employer. The factors 'hindering' learning were certain approaches of host employers and ways in which they interacted with apprentices, the structure of work, and a number of contextual circumstances such as weather extremes, non-work commitments, defective tools and unexpected events.

One further interesting insight into the nature of the worksite as a learning environment is that a considerable amount of self-assessment occurs. The very nature of the job tells whether the task has been successful or not—standards of performance are embedded in the work. In this sense, the apprentice 'owns' the responsibility of progression, of moving on to acquisition of the next skill. If trust has been built between apprentice and host employer, the host employer doesn't have to check continuously. In this way, the apprentice develops the skills of self-criticism and ideas on what are acceptable standards. This condition fosters learning experientially as distinct from being taught.

The challenge is for 'trainers', not only in on-job but also in off-job environments, to recognise and value these facilitating conditions and to build climates, structures and skills that optimise learning for their apprentices.

Small business management skills

Some writers have drawn attention to the fact that apprentices, soon after graduating as skilled tradespeople, strive to become self-employed (see chapter 2). Our study also found, in interviewing recent graduates from the apprenticeship system, that the majority of them had flown the employee nest and become self-employed. The interesting question here is

where and when they are to obtain these skills, given that the first and most important function of both on and off-job sites is to prepare the apprentices to be competent tradespeople. There is no doubt in this study that they picked up traces of small business expertise from all three sites—TAFE, HIA and worksite—and that this picking up became more noticeable and more apprentice-initiated as the apprenticeship progressed. The extent of learning of these skills at the worksite, however, very much depended on the health of the relationship between apprentice and host employer. It was most directly influenced, perhaps, by the degree to which the host employer trusted the apprentice and did not feel threatened by them as a potential competitor in the business sense.

Recognition of the tensions in apprenticeship learning

This research on apprentices' experiences over four years of an apprenticeship reveals that it is not simply a case of the flight being positive in the sense that the destination (graduation) is reached. It can also be problematic in the sense that the journey itself is fraught with a degree of tension and turbulence. The experience of on and off-job learning can be complementary but the evidence in this study shows that it can also be contradictory, conflictual and contested. This theme is taken up again and underlying reasons examined in the final chapter.

Such tensions are not necessarily a negative factor in the apprentices' learning environments. While they often act as a barrier to the integration of learning, they can also serve the purpose of preparing and equipping the novice for the 'real' world of work. They promote and sharpen thinking. They challenge assumptions and beliefs. And they create 'disorienting dilemmas' which are essential precursors to learning in the view of Mezirow (1981, 1991). Thus the facilitators of learning at both on and off-job sites need to recognise clearly the positives and negatives of these tensions and take account of them in their structuring of environments to optimise the learning of their apprentices. Failure to do so will result in an integrated training arrangement that promotes confusion. It will fail to be proactive in helping to make learning complementary and, instead, leave the task of 'fitting' often contradictory learning together to chance or, at worst, conflict.

Some research implications

Role of the workplace mentor

A key finding in this study is the critical place of the workplace mentor in apprentice learning. Especially in small business environments, this person plays many roles. In the current press towards workplace training and assessing, more research is urgently required. It needs to look at the extent

of 'readiness, willingness and ability' of workers in various industries to take on and effectively fulfil these various roles, as well as the concomitant impacts upon their own work organisation and productivity.

A related aspect for further research is the genesis of the 'workplace trainer'. There is a need to investigate who becomes an effective workplace trainer and how, and what makes that person effective in that role. Apprentices in this study were clear that workplace trainers need more skills in areas such as communication and conflict resolution. They also need to develop particular personal attributes (for example, the ability to deal sensitively and productively with contingencies and difficulties that arise as a result of mistakes during training) if they are able successfully to foster learning.

Current Workplace Trainer Category 1 competency standards, while providing considerable detail on the technical aspects of training, do not appear to address the competencies which apprentices in this study believe workplace trainers need. In addition, their appeal to more structured training situations is not particularly suited to training within small business. In focus group discussions, apprentices strongly recommended that there needs to be work done to determine the knowledge, skills and attributes needed to be a successful trainer in a small business environment. They also suggested that perhaps training in this area could be introduced as part of the apprenticeship, in a similar manner to small business skills or the First Aid Certificate which must be completed by each apprentice.

Informal and incidental learning in the workplace

More in-depth, qualitative studies are required on workplace learning—particularly informal and incidental—as distinct from workplace training. There is still little known about these types of learning in the workplace and, in the literature (chapter 2), they are normally written about in an unfavourable light. A number of similar studies across different industries would enable a meta-analysis to be undertaken that could then inform policy and practice about what actually happens in the workplace—and when, why, how and to whom.

Sefton & Waterhouse (1996, p.17) announced that one of their important observations is that workplace learning and training are not synonymous. There is a great deal of learning going on which is not directly related to training at all. Many of the opportunities for workplace learning are informal, incidental and unstructured, yet they are no less valuable for this.

The evidence from this study supports the ideas of Sefton and Waterhouse and extends them by including the observation made by some of the apprentices that being present and working on a building site does not always mean that learning will take place. In fact, there can be many instances where no learning occurs for extended periods of time

because the conditions which enable learning are absent from the environment and/or subordinated to the need to ensure that the business remains viable and competitive.

Workplace culture in different industries and its effect on learning and training

Given the strength and importance of workplace culture, more research is required on the nature of this culture in different industries—its rites of passage, traditions, values and ways of working as the twenty-first century approaches and technology changes. Given the renewed emphasis on the contextual significance of learning, real understanding of workplace learning and training can only eventuate when more is known about the contexts themselves. In this case, it is particularly important to find out about the less visible and harder to analyse facets of culture, and their influences on learning and training.

One subset of this research could profitably be the different values and intents in relation to learning and training across industries, and particularly their match, or lack of match, with those of various off-job providers. Such research may be very revealing in the context of user choice and an open and competitive training market, and the patterns of choice that will be made under such policies. It may be true that business is primarily interested in work and profit, while providers are primarily interested in individual learning and development. If this is the case, then the issue becomes one of how this inherent and inevitable dichotomy can be best handled in an economic-rationalist and resource-tight political climate like Australia's.

Pathways to industry

The government is emphasising on more vocational education and training in schools and an open training market that has spawned a relatively recent and dramatic rise in the number of private providers together with competition for TAFE. Because of this, further research on optimal pathways into industry would be helpful. These pathways are likely to differ between industries depending on such factors as traditions, structural arrangements and the degree of intellectual proximity of the vocational discipline to school and provider offerings. (For example, the more technical and dependent on specialised and expensive equipment and facilities, the less likely schools and private providers will be able to provide foundational pathways.)

Small businesses as learning environments

Small business environments are not only quantitatively but also qualitatively different from medium and large business environments (as mentioned earlier). More research could be usefully carried out on the

differences between these environments and the implications for different types and levels of training and learning. Information on a number of issues would assist in the demystifying of small businesses as learning environments. These issues include how best to get the learning out of work in these different environments, which learners are better equipped to take advantage of various environments (and why and how?) and which workplace mentors are more skilled at facilitating learning in various environments (and why and how?).

Language of training and learning in the workplace

Studies on the cognitive and social functions of language in the schoolroom abound. However, more research could profitably be done on the nature and functions of language with respect to on-job training. Scribner and Sachs (1990) claim that theoretical foundations are weak in this area as a result of the embryonic nature of research on the educative role of language in the workplace. They suggest from their own study that workplace mentors initiate and do most of the talking, talk in stretches of monologue, and rather than question as teachers might do, sprinkle their language with interjections (such as 'okay?' and 'right?') which serve more to keep in contact than to 'train'. Such analysis of linguistic patterns lay outside the scope and methodology of this study, but it would be enlightening for further research to be undertaken in this area to understand more fully the 'teaching' processes of on-job training.

Validity of the notion of situated learning

Situated learning emphasises the idea that much of what is learned is specific to the situation in which it is learned. The notion of 'situated learning' has not been without critique. Anderson, Reder and Simon (1996) have contended that its claims have been 'overstated' and 'often inaccurate', and that some of the educational implications taken from these claims have been misguided. In their view, what is needed is to continue to deepen our research into the circumstances that determine when narrower or broader contexts are required, and when attention to narrower or broader skills are optimal for effective and efficient learning.

In the context of this study, the implication from their argument is a preference for both on and off-job learning. These authors conclude that cognition is partly context dependent and partly not, that there are both failures and successes of transfer, that while concrete instruction helps, so does abstract, and that while some performances benefit from training in a social context, others do not. However, further research is required to understand and have a firm basis for the appropriate mix and balance of the on and off-job environments.

This chapter has integrated the study's findings in the light of the current climate of national training reform and drawn some implications for

policy, practice and research. Training reform is proceeding at such a pace within similarly changing political priorities and industrial imperatives, together with an unmistakeable shift in the balance of power away from providers towards workplaces, that it is extremely difficult to reach conclusions within this fluid environment. However, the conclusions from this study are clear *per se*, from the qualitative text obtained from the South Australian samples and amplified by empirical data from the New South Wales and Western Australian samples, and these reveal the actual experiences of apprenticeship in the sites studied. Whether the implications drawn from these experiences remain valid is very much dependent upon the directions taken in the immediate future on training reform by governmental instrumentalities and industry representatives.

The next and final chapter summarises the key themes, indicates what we have learnt from this study and reaches several conclusions as a result of its findings.

13 Summary and conclusions

At the start of chapter 2, we described pelicans in their environments and introduced the idea of comparing apprentices with pelicans. The further we have progressed into this study, the more we have come to appreciate that learning apprentices are very similar to flying pelicans. The analogy appealed to us from the beginning, grew intriguingly through the study and has maintained its momentum with us to the end.

Pelicans try to take off out of the water by flapping their wings with huge energy. They survive by taking bits from their various environments. Sometimes they fly in flocks, sometimes singly, then regroup with their companions. They experiment with finding their own levels, sometimes skimming low over the surface of one environment and sometimes soaring high in another. Sometimes they flap furiously in flight to make headway, at other times they glide with wings still as they ride a thermal.

Apprentices have been the central focus of this story, as reflected in our opening with Mario (chapter 1). As the story unfolded (chapters 5–9), we have seen them getting a start, not always comfortably, and surviving by dipping into their on and off-job environments and taking what they require at those times. They oscillate between the workplace, the HIA and the TAFE institute: in the former environment, usually as a single learner with a mentor; and, in the latter, two environments clustering again with other learners and sharing experiences and learning from other mentors. Each has to discover the level where they are comfortable in their learning, sometimes learning best from one environment and at times from another, sometimes gliding effortlessly and at other times engaging in struggle.

The main themes and conclusions

Our story is a very human one. It is an account of the experiences of learning in on and off-job environments as seen through the eyes of the learners and their sponsors. That is why we began with the story of Mario and Sam, to highlight the human dimension from the beginning and to foreshadow themes which were to be picked up later as the story unfolded. One of our main conclusions is that such learning journeys as apprenticeships and traineeships are essentially about relationships, trust,

commitment and common goals. We have found that the role of the workplace mentor (in this case, the host employer) is a critical factor in this journey, and that all the learning does not lie solely in the province of the apprentice. The most effective examples are actually learning communities, involving all the actors.

At times the apprentices, like pelicans on thermals, coast along on the hot air they receive from either on or off-job sites, smug in the knowledge that at this particular moment they know as much as, or more than, their mentors. At these times, their self-confidence and self-esteem are given a strong boost. At other times, they struggle, and have to cope with the changing moods of their bosses and teachers which often entail disagreements and conflicts, 'tellings off' and strongly worded chastisements.

Early on, they have to work hard, learning not only the skills and knowledge of building, but about their new environments, what is helpful in each and what is not, and building relationships with others (for example, apprentices, workmates, 'subbies', TAFE teachers, HIA co-ordinators). This process also involves constructing their own syntheses from what they are learning—which is sometimes contradictory from different sources—and learning to make wise decisions about when each of speed, accuracy and quality are paramount and when they are able to take shortcuts without detrimental effect (when these criteria are often in juxtaposition and in potential contradiction with each other). They are also learning how to 'pick up' small business skills almost secretly and surreptitiously so that their career might later broaden and prosper after graduation, yet knowing the boss can often feel threatened by the apprentice:

- becoming in the near future another sub-contractor in potential competition with him (and all host employers were males in this study)
- seeming at this point to have become more knowledgeable than him. The host employer can therefore feel overtaken by the new kid on the blocks and apprehensive that they may find faults in the way he is doing things and running a business. This is probably the way he's always done things and they've been okay for him all these years. An example might be in technology, especially increasing computerisation of technical tasks and of business management, and in the emergence of new materials and products

Both threats relate to different dimensions of the phenomenon of displacement. The first threat may arise as the apprentice grows into a potential competitor in the business sense; the second may arise where the novice grows into a potential expert in the knowledge sense. Both are points of tension for the host employer. If felt particularly acutely, they may result in strained interpersonal relations, and even in the

withholding of key 'tricks of the trade' in an attempt to maintain the differential status between tradespeople/sub-contractor and learner/apprentice. (This is less likely to be so where there is a familial connection involved.) Thus the learning of the apprentice is very much influenced by the quality of the relationship with the host employer and the degree of trust and comfort shared.

Our story is also about a very ordinary situation—neither recognised 'best practice', nor chosen for any special reason, and perhaps therefore more representative of everyday reality in the Australian workforce than 'best practice' case studies. Another of our main conclusions is that the life of the apprentice/trainee is one more of turbulence and tension than has hitherto been depicted in the literature.

What we have come to realise is that the story of the apprentice/trainee in the literature is most often a sanitised one, whitewashed and clinical and devoid of much of its human character. There are no doubt a number of reasons for this genre of story. One may be the lack of in-depth studies on their situation. Another may be the dearth of qualitative research, especially from the perspective of the learner. Yet another may be the unfailing belief in the infallibility and inherent goodness of the apprenticeship model and the consequent emphasis on politico-structural arrangements. And probably the most likely is the current pre-occupation with 'best practice' studies where it is either unfashionable to depict struggle, or the sites are so trouble free that the life of the learner is really as smooth as they say.

We have come to recognise that the prongs of the apprentice's tuning fork of learning are not always resonating in harmony. The messages they receive from the different learning environments are often contradictory, often in conflict within the apprentice's mind. The predominant theme coming through the voices in this report is one of contestation. The sites as learning environments are fundamentally different. Hence the notion of integration becomes problematic, but extremely significant.

One dimension of this difference is the goals of the different sites. Their notions of competence are conceived very differently. One desires competence so the apprentice can be more productive, get the task done as quickly as possible in order to move on to the next job, thereby making as much money as possible for the boss; competence is seen as primarily skills driven. The other desires competence so that the apprentice can be individually developed, sound in the key principles and standards of the vocation, in occupational safety and in key competencies. This is important so that the apprentice can be prepared for work anywhere in the industry and in a multitude of various situations, including becoming later a small business operator; competence is seen as primarily credentials driven. One focusses primarily on working, the other focusses primarily on learning. These worlds dance to the beat of different tunes and they are not always in resonance in the apprentice's mind.

The different environments not only have different goals, they exhibit different theories, methods and standards. These differences are perhaps most succinctly summarised in the title of a paper the researchers presented in Melbourne in October 1996, 'You watch and then do it . . . They talk and you listen', to refer to the on and off-job sites as learning environments (Harris, Simons & Willis 1996). The former is more first person, more active, more practical, more experiential; the second is more third person, more passive, more conceptual, more reflective.

So too are the dimensions of time and scope different. The perspective of off-job learning environments is more long term, industry wide and 'just in case'; the perspective of on-job learning environments is more short term, employer specific and 'just in time'. Thus what is deemed interesting, relevant and important can vary considerably in different learning environments.

We have also found that the roles of the actors are multifarious. The apprentice is a 'learner', yes, but they are simultaneously also the boss' lad/lass, a (characteristically) late teenager growing into a man/woman, a workmate, a TAFE student, an HIA employee, a potential 'chippie' and, more often than is generally realised, the son/daughter or nephew/niece of the host employer. Each of these roles has its own features and foibles—sometimes complementary, at other times contradictory, sometimes comfortable, at other times conflictual. The host employer is a sub-contractor, but they are also a workplace coach, an informal assessor, a motivator, a small business operator, a family person, a workmate, a boss and often a relative of the apprentice. Often they have responsibilities to their own livelihood, the HIA and, to a lesser extent, the TAFE institute. The roles of the TAFE teacher and the HIA co-ordinator are in this respect more circumscribed, but they also have their different facets. These include a classroom instructor, formal assessor and curriculum interpreter in the instance of the former, and employer representative, group mentor and chief trouble-shooter in the case of the latter.

From a strictly administrative viewpoint, the apprentice is a 'client' of the industrial association, the workplace sub-contractor and the TAFE teacher. A fascinating insight from this study is that, simultaneously in the middle of all these varied influences, the apprentice serves as a mediator between them. The apprentice is the common factor among these three groups who in this case only serendipitously communicate with each other and do not appear to value particularly highly each others' contribution. In such a situation, where the apprentice is required under the apprenticeship arrangement to oscillate between them, they are in a position to hear all sorts of perspectives, and need to make sense of them in order to maintain the peace. The potential here for conflict or at least confusion is ever present in the lives of the apprentices.

The story, however, usually sees a happy ending, as almost all apprentices keep going and survive to turn themselves into fully-fledged tradespeople. The story is therefore one of increasing autonomy and self-direction over time. Developmental time is very important in apprenticeship/traineeship arrangements.

We have seen in preceding chapters how the apprentice has to learn how, and when, to adjust, negotiate, compromise. The apprentice has to become more autonomous and self-directed in order to survive. This is, of course, a desirable outcome. Within their communities of practice, the apprentices reconstruct their learning environments, manipulate them and pluck what they can when they can, rather than the environments being entities that mould the learners. While the knowledge and values of the vocation of building are transmitted through the two environments, the real process is less a case of knowledge being given and more a case of the apprentices negotiating their own through active acquisition and interpretation. The constructors of learning environments may well provide what they perceive as valuable contributions (see chapters 5 and 6), but whether, and when, learners take on board these contributions is another matter. Like pelicans they learn irrespective of how constructed their learning environments may be, and use what is needed at that point in time. And over time their learning matures, as they themselves mature, to become fully fledged artisans in their own right—competent, confident and with a strong foundation for surviving in their future habitat, whatever and wherever that may be.

These negotiation and reconstruction processes occur within an atmosphere of turbulence. The flight of the pelicans is often a struggle. Why? The evidence in this study suggests that the struggle may emanate from various combinations of the following learning/working factors (and there may, in addition, be other personal, social or familial factors):

- the differences between the on and off-job learning environments in terms of goals, theories, methods and standards
- the attitudes and expectations of the mentors in each learning environment to the apprentices' learning and welfare
- the attitudes and expectations of the personnel in each community of practice to the others' contribution and value with regard to the apprentices' learning and welfare
- the perspective transformation within the apprentices themselves (from teenager, ex-school student, novice to adult, learner/worker, expert)
- inter-role and intra-role conflicts as a consequence of their apprentice status and position

To the degree that each apprentice is able to handle these stresses and strains, they will be able to integrate the different learnings from each environment and report that their apprenticeship experience has been positive in their development as a tradesperson.

As the fruit yields its juice under gentle and progressive squeezing, so the apprentice learns to squeeze learning out of work. This has been the central theme in this study: the squeezing of learning out of work is the core competency of apprenticeship/traineeship. To the degree that they learn how and when to do this, so they will develop gently and progressively towards full tradespeople status.

A critical factor in this 'squeezing process' is the workplace mentor (here, the host employer). The host employer also must learn:

- how and when to manufacture and manipulate work activities so that the apprentice is enabled to squeeze learning from them
- how and when to 'fade' (Collins et al. 1989; Billett 1993) in order that the apprentice becomes progressively empowered with confidence and responsibility to initiate and tackle tasks in a self-directed manner

From this study we suggest that the level of expertise in 'squeezing' for both workplace mentor and apprentice is dependent on a complex blend of four main factors:

1 personality
2 training
3 experience in the relevant industry
4 disposition towards learning

At one end of the continuum in this study were host employers who were domineering and didactic, where finishing the job was the overriding concern. At the other end were host employers who were reflective and facilitative, where the development of the apprentice, both personally and vocationally, was also of great importance. All were scattered somewhere along this spectrum, depending on the mix of the above four factors and the quality of relationship with the apprentice.

Few if any host employers had any training as trainers (with implications for factors 2 and 4), most had considerable experience in the building industry (factor 3) and they would have typically been spread across personality types (factor 1). However, if they had completed a personality inventory (such as a Myer-Briggs type indicator), one suspects that they may have been skewed towards sensate, thinking and judging types, with concomitant preferences for such characteristics as detail, structure, analysis, logic, orderliness and closure.

On the other side of the training coin, this complexity is replicated in the case of the apprentices. At the start, their training and industry experience (factors 2 and 3) are minimal—negligible in many cases—and these are gradually acquired over time through the apprenticeship. Their disposition towards learning is variable; all teachers and host employers at some time during their interviews referred to apprentice motivation as a critical factor. And their personality would also spread across types, though again with a similar skewing, one suspects, as the host employers (though perhaps not so similar as the teachers). If this is so, like personality characteristics could be assumed to be a healthy starting point for relationship building with the host employers (and may partly account, along with time spent, for such relationships being closer than those with the teachers).

This core competency for workplace mentors is not easy either to learn or to enact, especially in a work climate where productivity is the pre-eminent focus and in an economic context where survival is the paramount goal. But to the extent that the workplace mentor develops this competency, so will the apprentice progress smoothly and with less turbulence along the path from novice to expert.

So, in summary, what are the main conclusions from this in-depth study of on and off-job sites as learning environments? There are at least six that have been explored throughout this report and synthesised in the discussion above.

1 **The relationship between apprentice and workplace mentor is critical to apprentices' learning.**

This is all the more so in a small business environment, as is the housing industry for the most part. Workplace learning in small businesses is very different from learning in medium and large businesses. What is common is that much of what is published as well as spoken in industry conferences concerning workplace learning is addressed from the medium and large business perspective and rarely from the small business perspective.

2 **Each learning environment contributes *valuably* but *differently* to apprentices' learning.**

Each environment has limitations on its own and both are required for balanced vocational preparation. The notion of integrated training is problematic under these circumstances unless differences are valued and respected.

3 All participants play many roles, especially the apprentice.

Within the different learning environments, the apprentice has to play a number of roles, many often conflicting in terms of expectations, behaviours and values. The apprentice is simultaneously a client of the stakeholders and a mediator between them. The potential for role confusion and conflict is ever present in the working and learning life of the apprentice.

4 Apprenticeship is a negotiated, constructed experience where developmental time is important.

This study has shown that individual apprentices take in what they will when they want, that they will learn what is relevant to them at the time and do it their way. This is irrespective of, or even despite, the best intentions of others to construct certain types of environments. Space and time are necessary ingredients in the development of the modern apprentice along the flight path from school student to lifelong learner and from novice to expert.

5 Apprenticeship is a time of turbulence and tension.

This turbulence and tension in learning, which involves various combinations of on and off-job training (in this case, worksites, TAFE and HIA), is inherent and endemic. It derives from the status of apprentices and the various roles they must play within different environments. Such struggle, however, has the potential to be a significant ingredient in the learners' development—if it is able to be well managed—in that it stimulates apprentices to think for themselves, synthesise contradictory views, reconcile and problem-solve.

6 Squeezing learning out of work is a core competency in apprenticeship.

The core competency in apprenticeship is 'squeezing learning out of work'. Both apprentice and workplace mentor need to know how and when to do this. Expertise on this competency depends on four key factors—personality, training, industry experience and disposition towards learning. To the degree that both actors learn how and when to 'squeeze', so the apprentice will develop gently and with less turbulence towards full tradesperson status.

The research objectives revisited

This study aimed to investigate three main issues—namely, what the relative contributions were of the workplace and provider environments, how they might best complement each other, and the enablers and barriers to establishing integrated models of training (see chapter 4). These research objectives have been the main focus of the data collection and data analysis presented in the chapters through this report, both from a qualitative perspective in chapters 5–9 and from a quantitative perspective in chapter 10. The issues have been explored in detail throughout the report. The salient points are summarised here.

a What are the contributions of the workplace and provider environments to the learning of apprentices?

We conclude from evidence in this study that both sites make contributions to increasing the confidence, competence and independence of the apprentice. However, the contributions are different and the on-job environment is perceived to make the greater contribution. Comments reveal that these contributions are mediated by a number of key factors, including:

- the orientation of the workplace trainer
- the personal characteristics of the apprentice
- the stage of development of the apprentice
- the nature of the worksite
- the previous experiences of both the apprentice and trainer
- the nature of the relationship that exists between the trainer and apprentice
- the timing of the off-job component vis-a-vis the nature of the on-job work

In chapters 7 and 8, detailed qualitative analyses have provided insight into the nature of the contributions from the off and on-job environments (summarised in figures 2 and 3), and these have been reinforced by the quantitative data in chapter 10. It is apparent that the learnings at each site sit in contrast to one other. Not only are the topics usually more theoretical and less 'relevant', the nature of the learning environment and the demands it places on the apprentice are quite different.

Learning on the job is perceived to be more real life, contextualised and relevant, concerned primarily with the 'how', efficient though not necessarily correct, and more observational and manipulative. It is also more immediate, more time-pressured, more just in time and improvised, and more incidental and one to one in nature. On

the other hand, learning off the job is perceived to be more theoretical and by the book, concerned primarily with the 'why', and less up to date in method and equipment. It is also more explanatory, detached, less time pressured, more detailed and deliberate, broader in scope and more group oriented and paced in nature.

These differences are to some extent complementary and to some extent in conflict. The common goal is to produce a competent tradesperson. However, the primary concern of the small business is to train for the economic survival of that enterprise, while the primary concern of the provider is to train for the benefit of the industry as a whole. There is, therefore, an inherent tension: to what degree they can be complementary is a moot point.

b How might they best complement each other for the benefit of apprentices?

The study has reinforced that the very notion of complementarity has diverse meanings. It can be interpreted, for example, in terms of timing, to refer to the coincidence of learning off job with that on site; or degree of relevance of one to the other, normally off job to on job; or the degree of usefulness of one to the other; or the opportunity to share learning from off job with workplace mentors. From the experiences recounted in this study, the following are some of the ways in which on and off-job sites can optimise their capacity to be learning environments for apprentices/trainees:

- Both on and off-job sites need to recognise the different goals, theories, methods and standards, to respect these differences and trust each other.
- Both on and off-job sites need to acknowledge that as learning environments both are legitimate and necessary sites for apprentice learning. Both have drawbacks and limitations and therefore need each other for balanced apprentice learning (for example, some form of two-way traffic would assist understanding of each other's position and circumstances).
- Both on and off-job sites need to communicate more often over how to integrate for the benefit of their apprentices, and then to maintain regular dialogue. (One example is for off-job providers to be on site more often and to play a much more active role in on-job assessment of apprentices. Another is for structured arrangements for optimum coincidence of learning at both sites in order to generate a close alliance of theory and practice.)

- The HIA needs to play a much more active role in closely monitoring the progress and welfare of their apprentices, brokering carefully and sensitively, and in assisting to bring on-job host employers and off-job teachers together more often.
- All three sponsors/stakeholders need to listen more carefully to their apprentices.

c What are the enablers and barriers to establishing integrated models of training?

From the results of this study, the following are proposed as a set of guidelines under which models of integrated training have the maximum chance of success. (It is to be noted that not all of these were operating positively in the views of the participants in this study.) These guidelines include:

- use of group training schemes, which are especially helpful for small businesses
- some initial institutional (preservice) training for apprentices/trainees
- frequent contact and communication between all involved environments
- up-to-date mentors on both on and off-job sites, especially off-job teachers (as there is the risk away from sites of becoming 'work divorced')
- respectful attitudes towards the other environments, with genuine understanding that each has a role to play with fundamentally different outlooks and values and therefore different contributions to make to apprentice learning. Acceptance of the value of contributions from each other's environment
- committed and supportive mentors in both environments, especially on job, since that is the working site and where the learner spends most time. Recognition that the setting aside of space and time, and the creating of a helpful learning climate for facilitating apprentice learning, is an important part of the mentoring role
- competence in facilitating and assessing, especially one-to-one skills for the on-job host employers (the off-job teachers have usually undertaken teaching skills development). This includes analysing tasks, explaining, giving and receiving feedback, questioning, encouraging reflection on practice, informal assessing, and encouraging self-initiation and self-

direction. It is the early establishment and continuance of what Gott (1994, p.8) labels a 'coached apprenticeship' or Billett (1993, p.5) calls a 'guided apprenticeship' arrangement, where situated, supported and carefully devised and sequenced learning experiences have been shown to foster development

- given the National Training Framework, training packages that deliberately seek contributions from both environments along with competency assessment on the job by skilled and sensitive assessors

Summary of suggestions for change

Finally, a number of suggestions for change have emerged from this study. The following is a summary of useful suggestions to improve current practice where it has been shown to be needed.

- The HIA co-ordinator needs to play more of a co-ordinating and monitoring role.
- TAFE teachers need to up-date their skills and knowledge.
- Off-job curriculum/modules need close scrutiny to ensure they are up to date and relevant.
- Closer links with the industry are required by TAFE, and its training delivery and assessment procedures need to be more flexible—at times, in locations and using methods which meet the requirements of particular client groups (in this case, the building industry in general and the HIA in particular).
- The assessment logbook scheme is not working and requires overhaul. Apart from their format, there is an urgent need to reinforce their importance with workplace mentors as well as apprentices. The concept itself is worthwhile not only as a record for apprentices, but also to the degree that logbooks provide an important source of information facilitating linkages between on and off-job environments. An effective practice may be for TAFE teachers to venture into industry to conduct competency assessments of apprentices.
- Greater coincidence in timing needs to be planned between the formal learning that occurs off job (in this case, in TAFE) and the informal and incidental learning that happens on job (the housing site).
- A useful practice may be individual training plans for apprentices, so that the apprentice's level and range of skills are matched as closely as possible with those on offer by various employers. This

would be possible with HIA apprentices because the number of apprentices at any one time is not so large as to be unwieldy. Such an arrangement would have implications for the role of the HIA co-ordinator. Possible advantages are that apprentices are multi-skilled and employers receive an apprentice more suited to the type of work they perform. Examples where individual training plans are used are the PEERS program in South Australia and the Darling Park Project, Civil and Civic, in Sydney (both case studies are discussed in Buchanan & Sullivan, 1996, pp.8,10).

- Up-front training off job prior to going on site for paid employment may be a useful structural arrangement. The potential advantage here is that apprentices are more productive and cost effective to employers earlier, a benefit particularly for small host employers as in the housing industry. This is the philosophy behind the training at BIGS in Victoria. It is also a characteristic of the innovative Liverpool Hospital Redevelopment Project by Barclay Mowlem, where the key issue was not seen to be apprentice wages but supervisor costs. Thus, recruits received six to eight weeks of basic training, customised by TAFE on site, before being sent out to work. Another example is the MBA Build-A-Job Program in Western Australia and New South Wales, where the first six months involve intensive off-job training by TAFE before apprentices set foot on site. (All three case studies are discussed in Buchanan & Sullivan 1996, pp.8,12.)
- A focus on improving on-the-job training practices. This requires some form of professional development for host-employers who are taking on apprentices and who *ipso facto* have a responsibility for their development. Penrith Industrial Skills Centre had as a distinctive practice regular inspection of all employers to ensure that they were actually teaching apprentices/trainees new skills and were not simply using them as cheap labour (see Buchanan & Sullivan 1996, p.9).

In general, all key stakeholders need to recognise the sources and strengths of the tensions between and within their learning environments, and to begin building bridges so that the various environments are the most conducive to learning for apprentices/trainees. One helpful example of bridging tried by the researchers was at a day conference during Adult Learners Week, in September 1996 in Adelaide. It involved two apprentices, a host employer, a TAFE teacher and the HIA co-ordinator as a panel to discuss some of the issues emerging at that time from this study.

These key stakeholders need to communicate with each other more deliberately and more frequently. Chapters 5 and 6 revealed how serendipitously and infrequently host employers and teachers were in contact. The whole agenda of learning for the apprentice needs to be

debated and structured in the best interests of the apprentice where, for example, one environment is recognised, and valued, as the best for particular types of learning, and another environment for other types of learning. Only then can different sites begin to feel comfortable that all learning environments have a worthwhile and legitimate role to play in assisting the pelicans to fly.

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APPENDIX A
Interview schedules (SA participants)

Apprentices

The scene

[Tape recorder]

Introductions

Setting the scene

How long have you been an apprentice with HIA?

Where have you been working during that time?

Who have you been working with?

How many trainers have you worked with?

Have you been going to/been to TAFE?

When?

How long for?

What did you do before you started your apprenticeship?

Can you remember what your first day on the job was like? Tell me about that?

The purpose of this interview is to explore your experiences of learning, and in particular the learning you have done while you've been at work and the learning that you've done at TAFE. Let's focus on some of the things that you have learnt during your time as an apprentice.

Learning

1 What sorts of things have you learnt during the last two months while you've been at work? *[Prompt for all sorts of learning—life skills]*

2 a Think back to a specific time when you learnt something at work, something that was new to you at the time? What can you think of?

b How did this learning about X occur?

3 a Was there anything in particular that helped you to learn X? Please explain.

b Was there anything that did not help you to learn? Please explain.

4 Was learning X planned or did it just happen?

[Follow up questions in relation to whether all on-job training is like this]

5 How do you know that you've learned X?

Experience of learning with the workplace host employer

6 From whom did you learn X?

7 What was the experience of learning with [host employer] like?

8 What happens when you have to 'unlearn' something? How do you go about this?

Assessment

9 a Will you be/have you been tested on your ability to do X?

b How will/did this happen?

10 What do you think about the booklets that are used to keep a record of your progress?

Off-job training

11 Thinking about TAFE, what is it like going to TAFE?

12 a What sorts of things have you learnt there?

b Pick one thing—how did this learning about Y occur?

13 How is learning at TAFE different from learning out on-the-job?

14 a How do you find the teachers at TAFE?

b What do they do to help/hinder your learning?

Integration

15 a How does what you did with [host employer] fit in with what you're doing/have done at TAFE?

b How is it different?

16 a How does what you learn at TAFE help you to learn out on the job?

b How does what you learn on the job help you when you go to TAFE?

17 If it was different, what was it like trying to make sense of all this? How did you feel?

Key competencies

18 a Besides learning about your trade, there are other things that you need to know in order to be able to work effectively. Prompt about some of the key competencies:

- collecting and organising information,
- communicating ideas and information,

- planning and organising activities,
- working with others and in teams,
- using mathematical ideas and techniques,
- solving problems, and
- using technology

b Where and how have you learnt these things?

c What sorts of things do you think your employer wants you to learn?

d What sorts of things do you want to learn?

e Where are you learning these?

General comments

19 So thinking about what you've said about learning, what is learning for you?

20 What kinds of issues or conflicts have you experienced in your training?

21 Any other comments you have about learning on and off-the-job?

Host employers

The scene

[Tape recorder]

Introductions

Setting the scene

How long have you been in the building industry?

What sort of training/qualifications do you have?

How did you come to have an apprentice working with you?

How many apprentices are you currently working with?

How did you come to work with this/these apprentice(s)?

How many apprentices have you had in the past?

The purpose of this interview is to explore your role as an on-job trainer and in particular how you have worked with [Y]. Let's focus on your ideas relating to how you approach working with apprentices.

Role as a trainer

1 From your perspective, what is the purpose of the on-job component of training that apprentices undertake?

What is your role in this part of their training?

2 When you have to help an apprentice how to learn something (e.g. a new skill), what do you do?

Specific learning incident

3 Think back to a specific time when you taught [Y] something. What can you think of?

Thinking back to when this happened, how did you approach this situation?

- What sorts of things were you hoping [Y] would be able to do?
- What sort of guidance and help did you provide for [Y]?
- Did you leave [Y] to work on her/his own?
- If yes, how did you monitor her/his performance during this time?
- If no, was there a reason for not leaving [Y] alone?
- Did you encourage [Y] to draw on his/her experiences from off-job training?
- If yes, describe how you did this?
- Was this deliberate, or did it happen by chance? Please explain.
- How would you rate the way you and [Y] worked together on this occasion?

Assessment

4 Do you have to test [Y's] performance in the workplace?

If yes, how do you go about this task?

If no, who is responsible for assessing [Y's] competency?

What do you think of the booklets that are used to keep a record of apprentices' progress?

Off-job training

5 What is your opinion of the training that [Y] undertakes at TAFE?

How would you rate this training in terms of its quality, usefulness?

Do you have any contact with TAFE teaching staff/HIA trainers?

If yes, please describe this contact—its purpose and frequency.

If no, is there any reason for this?

How do you think TAFE complements your training?

In what ways does your training complement the training that [Y] does at TAFE?

Key competencies

6 How does your learning environment contribute to apprentice development of the key competencies?

- collecting and organising information
- communicating ideas and information
- planning and organising activities
- working with others and in teams
- using mathematical ideas and techniques
- solving problems
- using technology

What does your environment have to offer apprentices in the development of these competencies that off-the-job training might not?

General comments

7 So what does the term 'training' mean to you?

8 Any other comments you have about on and off-the-job and their integration?

TAFE teachers

[Tape recorder]

Setting the scene

Tell me a little about yourself. How long have you been at TAFE? What do you teach? What did you do before you came into TAFE?

The purpose of the interview is to explore your role as an off-job teacher and in particular how you have worked with apprentices employed by the HIA. Let's focus on your ideas relating to how you approach working with apprentices.

1 From your perspective, what is the purpose of the off-job component of training that apprentices undertake?

2 How does what you do with the apprentices at TAFE fit in with their on-the-job training?

3 Have you been working with any of the HIA apprentices in the last two or three months? If no, when was the last time they came to TAFE?

4 What modules did the apprentices work on the last time they came to TAFE? What sorts of things were you hoping that they would be able to do?

5 How did you approach the task of facilitating [Y]/the apprentices' learning?

What sorts of guidance and help did you provide for [Y]/the apprentices?

6 Did you leave [Y]/the apprentices to work on her/his/their own?

If yes, how did you monitor her/his/their performance during this time?

If no, was there a reason for this?

7 How did you draw on the work experiences of [Y]/the apprentices?

Was this deliberate, or did it happen by chance? Please explain.

8 Do you have to assess [Y's]/the apprentices' performance in the workplace/off-the-job?

How do you go about this task?

9 How does the training undertaken by [Y]/the apprentices on the job help him/her/them when they come to TAFE?

10 Do you have any contact with the workplace trainers/other trainers who work with [Y]/the apprentices?

If yes, please describe this contact, its purpose and frequency.

If no, is there a reason for this?

11 How does your learning environment contribute to apprentice development of the key competencies? (prompt if needed)

What does your environment have to offer apprentices in the development of these competencies that on-the job training might not?

12 Any other comments you have about on and off the job and their integration?

APPENDIX B
Focus group questions (SA participants)

Tradespeople (first-year graduates)

Setting the scene

Opportunity for group members to meet each other.

Purpose and structure of the focus group.

Reflecting back on your time as apprentices with the HIA:

1 What was the purpose of the on-job component of your training?

2 What was the purpose of the off-job component of your training?

3 How well did the two learning environments fit together? Did they complement each other, or did there appear to be clashes? Describe the ways in which they complemented each other or the clashes. What effects did these circumstances have on you as a trainee?

4 What in your opinion are the factors that:

   a assisted you to learn in both the on and off-job environments?

   b hindered your learning in the two environments?

Drawing on your current expertise as tradespeople:

5 Knowing what you know now, what changes would you make to the ways in which you were trained for work in your occupation?

Apprentices

Setting the scene

Opportunity for group members to meet each other.

Purpose and structure of the focus group.

Reflecting on your time as apprentices with the HIA:

1 What is the purpose of the on-job component of your training?

2 What is the purpose of the off-job component of your training?

3 How well do the two learning environments fit together? Do they complement each other, or do there appear to be clashes? Describe the ways in which they complement each other or the clashes. What effects do these circumstances have on you as a trainee?

4 What in your opinion are the factors that:

   a assisted you to learn in both the on and off-job environments?

   b hindered your learning in the two environments?

Drawing on your current expertise as apprentices:

5 What changes would you make to the ways in which you are being trained for work in your occupation?

Host employers

The first section of the discussion will centre on the design and implementation of your training program.

1 From your perspective, who was responsible for setting up and implementing the integrated training program that your apprentices undertake?

   What role did you play in these processes?

   Have things changed now that the program is being run? If yes, how have they changed?

2 Currently, how are decisions made about:

   a changes to the program?

   b the way apprentices are assessed?

   c responsibility for the co-ordination of the overall training?

   How would you rate the way in which these aspects are handled?

   What changes do you think should be made? Why?

The second section will focus on learning and assessment in the two learning environments.

3 What is the role of an on-job trainer in your industry?

   How should people in this role approach the task of assisting apprentices to learn?

   What should they do?

4 What is the role of the TAFE teacher in relation to the apprentices?

   What should they be doing to assist apprentices to learn?

5 How is the learning of the apprentices assessed?

   Are you involved? If yes, how? If no, give reasons.

How is the assessment in the two environments integrated?

What is your opinion of this approach to assessment?

How might it be changed?

The third section will focus on the learning environments.

6 From your perspective, how effective is the off-job environment?

How effective is the on-job environment?

7 How well do the on and off-job components fit together?

What impact, if any, does this have on the apprentices?

8 What are the benefits to the apprentice of learning in both on and off-job environments?

9 What factors exist that inhibit integration of the on and off-job components of training?

What factors support the integration of training?

What changes do you think need to be made so as to improve this integration?

TAFE teachers

The first section of the discussion will centre on the design and implementation of your training program.

1 From your perspective, who was responsible for setting up and implementing the integrated training program that your apprentices undertake?

What role did you play in these processes?

Have things changed now that the program is being run? If yes, how have they changed?

2 Currently, how are decisions made about:

a changes to the program?

b the way apprentices are assessed?

c responsibility for the co-ordination of the overall training?

How would you rate the way in which these aspects are handled?

What changes do you think should be made? Why?

The second section will focus on learning and assessment in the two learning environments.

3 What is the role of a TAFE teacher in preparing workers for the building industry?

How should people in this role approach the task of assisting apprentices to learn?

What should they do?

4 What is the role of the on-job trainer in relation to the apprentices?

What should they be doing to assist apprentices to learn?

5 How is the learning of the apprentices assessed?

Are you involved? If yes, how? If no, give reasons.

How is the assessment in the two environments integrated?

What is your opinion of this approach to assessment?

How might it be changed?

The third section will focus on the learning environments.

6 From your perspective, how effective is the on-job environment?

How effective is the off-job environment?

7 How well do the on and off-job components fit together?

What impact, if any, does this have on the apprentices?

8 What are the benefits to the apprentice of learning in both on and off-job environments?

9 What factors exist that inhibit integration of the on and off-job components of training?

What factors support the integration of training?

What changes do you think need to be made so as to improve this integration?

APPENDIX C
Questionnaires (NSW/WA participants)

HOUSING INDUSTRY ASSOCIATION

(S.A. Division)

AND UNIVERSITY OF SOUTH AUSTRALIA

(Centre for Research in Education, Equity and Work)

On and off job sites as learning environments

APPRENTICE QUESTIONNAIRE

This survey is being conducted as part of a study looking at the integration of on and off-job training within the housing industry in Australia. Your assistance in completing this questionnaire would be greatly appreciated. Your answers will be kept confidential. Most questions require you to tick a box or circle an answer. There are some that will require a brief written response.

Questions 1 - 3 are asking you to think about the training you do on-site

1.

In your opinion, what is the purpose of the on-site component of your training?
* Using the scale below, please circle the answer that most represents your opinion.
  Please circle one response for each statement.

	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	ONLY IMPORTANT TO A SMALL EXTENT	NOT AT ALL IMPORTANT
to apply what you learn off-the-job	5	4	3	2	1
to learn practical skills in a worksite environment	5	4	3	2	1
to help the trainer / subcontractor with their work	5	4	3	2	1
to build your confidence	5	4	3	2	1
to correct previous training done with other subcontractors	5	4	3	2	1
to learn things that are not covered in the off-job environment	5	4	3	2	1
to help you get your qualifications	5	4	3	2	1
to motivate you to work	5	4	3	2	1
to help you learn for your future role as a tradesperson	5	4	3	2	1
to help you understand the way the workplace operates	5	4	3	2	1

2.

In your opinion, how useful is the on-site environment in helping you learn your trade?
* Please tick the appropriate box and give reasons for your answer in the space provided.

☐ Very useful ☐ Useful ☐ Moderately useful ☐ Only useful to a small extent ☐ Not at all useful

Reasons: _____

_____

_____

3.

When you are learning on-site, how often do you talk about the learning you have done in the off-job environment?
* Please tick the appropriate box and add any comments in the space provided.

☐ Very frequently ☐ Often ☐ Sometimes ☐ Seldom ☐ Never

Comments: _____

_____

_____

_____

Questions 4 - 5 are asking you to think about the training that you undertake off-the-job (eg: at TAFE or a private provider).

4.

In your opinion, what is the purpose of the off-the-job component of your training?
* Using the scale below, please circle the answer that most represents your opinion.
Please circle one response for each statement.

PURPOSE OF OFF-JOB TRAINING FOR APPRENTICES	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	ONLY IMPORTANT TO A SMALL EXTENT	NOT AT ALL IMPORTANT
to help you learn the basic skills before you go out into the workplace	5	4	3	2	1
to help you learn practical skills	5	4	3	2	1
to help you to learn the skills that you don't learn on-site	5	4	3	2	1
to give you a broad perspective of the industry	5	4	3	2	1
to complement the learning that you do on-site	5	4	3	2	1
to broaden your knowledge and skill base	5	4	3	2	1
to learn skills in a non-pressured environment	5	4	3	2	1
to learn theory	5	4	3	2	1

5.

In your opinion, how useful is the off-job environment in helping you to learn your trade?
* Please tick the appropriate box and give reasons for your answer in the space provided.

☐ Very useful ☐ Useful ☐ Moderately useful ☐ Only useful to a small extent ☐ Not at all useful

Reasons: _____

_____

_____

6.

In this question we are asking for your ideas on two things. Firstly, we would like to know **how important** you think the following issues are in helping to effectively integrate on-site and off-job learning for you. Secondly, we would like to know **if these things are currently happening in your situation**.
* Using the scale given please **circle one response** for each item:
3 = Important 2 = Of some importance 1 = Not important
Then circle either "Yes" or "No" to indicate if this aspect is currently happening in your situation.

	IMPORTANT	OF SOME IMPORTANCE	NOT IMPORTANT	CURRENTLY HAPPENING IN YOUR SITUATION?	
there is good communication between on-site trainers and off-job providers	3	2	1	Yes	No
there are opportunities for assessment of your learning to be undertaken on-site	3	2	1	Yes	No
the off-job providers are well trained	3	2	1	Yes	No
the on-site trainers are well trained	3	2	1	Yes	No
there are opportunities for on-site trainers to have input into the off-site curriculum	3	2	1	Yes	No
there are opportunities for off-job providers to come onto the worksite	3	2	1	Yes	No
a clear understanding of your learning needs	3	2	1	Yes	No
there is a good relationship between you and the on-job trainer	3	2	1	Yes	No

6. Cont'd

* Using the scale given please **circle one response** for each item.
3 = Important 2 = Of some importance 1 = Not important
Then circle either "Yes" or "No" to indicate if this aspect is currently happening in your situation.

	IMPORTANT	OF SOME IMPORTANCE	NOT IMPORTANT	CURRENTLY HAPPENING IN YOUR SITUATION?	
there are opportunities for the on-site trainer to find out what happens in the off-job environment	3	2	1	Yes	No
there are opportunities for the off-job provider to find out what happens on-site	3	2	1	Yes	No
overall responsibility for the integrated program is taken by the workplace	3	2	1	Yes	No
overall responsibility for the integrated program is taken by the off-job provider	3	2	1	Yes	No
overall responsibility for the program is shared between the workplace and off-job provider	3	2	1	Yes	No
assessment and learning resources are available for you to use on-site	3	2	1	Yes	No

7.

In your opinion, how would you rate the effectiveness of the link between your on-site and off-job training?
* Please tick the appropriate box.

☐ Very effective ☐ Effective ☐ Moderately effective ☐ Only effective to a small extent ☐ Not at all effective

8.

What do you think are the three main factors that **hinder** the integration of on-site and off-job training for you?

1. _____

2. _____

3. _____

9.

What changes do you think should be made to increase the effectiveness of the learning you are doing as an apprentice in the housing industry?

_____

_____

_____

_____

10.

This question is asking for some background information about yourself.
* Please tick the appropriate box.

(a) Gender ☐ Male

☐ Female

(b) Number of years as a trainee / apprentice:

☐ Less than 1 year

☐ 1 - 2 years

☐ 2 -3 years

☐ 3 -4 years

☐ I am now qualified

(c) How many on-job trainers have you worked with during your apprenticeship? _____

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE. PLEASE PLACE IT IN THE REPLY-PAID ENVELOPE PROVIDED AND POST IT BACK TO THE UNIVERSITY OF SOUTH AUSTRALIA.

HOUSING INDUSTRY ASSOCIATION

(S.A. Division)

AND UNIVERSITY OF SOUTH AUSTRALIA

(Centre for Research in Education, Equity and Work)

On and off job sites as learning environments

WORKPLACE TRAINER QUESTIONNAIRE

This survey is being conducted as part of a study looking at the integration of on and off-job training within the housing industry in Australia. Your assistance in completing this questionnaire would be greatly appreciated. Your answers will be kept confidential. Most questions require you to tick a box or circle an answer. There are some that will require a brief written response.

Questions 1 - 3 are asking you to think about the training you do on-site with your apprentices.

1.

In your opinion, what is the purpose of on-site training for apprentices in the housing industry?
* Using the scale below, please circle the answer that most represents your opinion.
Please circle one response for each statement.

PURPOSE OF ON-JOB TRAINING FOR APPRENTICES	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	ONLY IMPORTANT TO A SMALL EXTENT	NOT AT ALL IMPORTANT
to apply what apprentices learn off-the-job	5	4	3	2	1
to teach practical skills in a worksite environment	5	4	3	2	1
to help the trainer / subcontractor in their work	5	4	3	2	1
to build the confidence of apprentices	5	4	3	2	1
to correct previous training done with other subcontractors	5	4	3	2	1
to provide the training that is missed in the off-job environment	5	4	3	2	1
to pass on the trade to apprentices	5	4	3	2	1
to help apprentices get their qualifications	5	4	3	2	1
to correct previous training done off-the-job	5	4	3	2	1
to motivate apprentices at work	5	4	3	2	1
to help apprentices to learn for their future role as tradespersons	5	4	3	2	1
to help apprentices understand the way the workplace operates	5	4	3	2	1

2.

In your opinion, how useful is the on-site environment in helping apprentices learn their trade?
* Please tick the appropriate box and give reasons for your answer in the space provided.

☐ Very useful ☐ Useful ☐ Moderately useful ☐ Only useful to a small extent ☐ Not at all useful

Reasons: _____

_____

_____

3.

When you are training apprentices on-site, how often do you refer to what they've learnt in the off-job environment?
* Please tick the appropriate box and add any comments in the space provided.

☐ Very frequently ☐ Often ☐ Sometimes ☐ Seldom ☐ Never

Comments: _____

_____

_____

Questions 4 - 5 are asking you to think about the training that your apprentices undertake off-the-job (eg: at TAFE or a private provider).

4.

In your opinion, what is the purpose of off-the-job training for apprentices in the housing industry?
* Using the scale below, please circle the answer that most represents your opinion.
Please circle one response for each statement.

PURPOSE OF OFF-JOB TRAINING FOR APPRENTICES	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	ONLY IMPORTANT TO A SMALL EXTENT	NOT AT ALL IMPORTANT
to teach apprentices the basic skills before they go out on-site	5	4	3	2	1
to teach practical skills	5	4	3	2	1
to teach the skills that are not taught on-site	5	4	3	2	1
to give apprentices a broad perspective of the industry	5	4	3	2	1
to complement the learning that apprentices do on-site	5	4	3	2	1
to broaden the knowledge and skill base of apprentices	5	4	3	2	1
to learn skills in a non-pressured environment	5	4	3	2	1
to teach theory	5	4	3	2	1

5.

In your opinion, how useful is the off-job environment in helping apprentices learn their trade?
* Please tick the appropriate box and give reasons for your answer in the space provided.

☐ Very useful ☐ Useful ☐ Moderately useful ☐ Only useful to a small extent ☐ Not at all useful

Reasons: _____

_____

_____

6.

In this question we are asking for your ideas on two things. Firstly, we would like to know **how important** you think the following issues are in helping to effectively integrate on-site and off-job learning for apprentices. Secondly, we would like to know **if these things are currently happening in your situation**.
* Using the scale given please **circle one response** for each item.
3 = Important 2 = Of some importance 1 = Not important
Then circle either "Yes" or "No" to indicate if this aspect is currently happening in your situation.

	IMPORTANT	OF SOME IMPORTANCE	NOT IMPORTANT	CURRENTLY HAPPENING IN YOUR SITUATION?	
there is good communication between the on-site trainer and off-job providers	3	2	1	Yes	No
formal assessment of apprentices' skills is undertaken on-site	3	2	1	Yes	No
the off-job component is delivered by well trained off-job providers	3	2	1	Yes	No
the on-site component is delivered by well trained on-site trainers	3	2	1	Yes	No
there are opportunities for on-site trainers to have input into the off-job curriculum	3	2	1	Yes	No
there are opportunities for the off-job providers to come onto the worksite	3	2	1	Yes	No
there is a clear understanding of the learning needs of apprentices	3	2	1	Yes	No
there is a good relationship between the on-site trainer and the apprentice(s)	3	2	1	Yes	No
there are opportunities for the on-site trainer to find out what happens in the off-job environment	3	2	1	Yes	No
there are opportunities for the off-job provider to find out what happens on-site	3	2	1	Yes	No

6. Cont'd

* Using the scale given please **circle one response** for each item:
3 = Important 2 = Of some importance 1 = Not important
Then circle either "Yes" or "No" to indicate if this aspect is currently happening in your situation.

	IMPORTANT	OF SOME IMPORTANCE	NOT IMPORTANT	CURRENTLY HAPPENING IN YOUR SITUATION?	
overall responsibility for the integrated program is taken by the workplace	3	2	1	Yes	No
overall responsibility for the integrated program is taken by the off-job provider	3	2	1	Yes	No
overall responsibility for the program is shared between the workplace and off-job provider	3	2	1	Yes	No
assessment and learning resources are available to be used on-site	3	2	1	Yes	No

7.

In your opinion, how effective is the present combination of on-site and off-job training for your apprentice(s)?
* Please tick the appropriate box and give reasons for your answer in the space provided.

☐ Very effective ☐ Effective ☐ Moderately effective ☐ Only effective to a small extent ☐ Not at all effective

Reasons: _____

_____

_____

_____

8.

What do you think are the three main factors that **hinder** the integration of on-site and off-job training for apprentices?

1. _____

2. _____

3. _____

9.

What changes do you think should be made to increase the effectiveness of the learning by apprentices in the housing industry?

_____

_____

_____

10.

This question is asking for some background information about yourself.
* Please tick the appropriate box.

(a) Gender
- ☐ Male
- ☐ Female

(b) Number of years in the building industry
- ☐ 0 - 5 years
- ☐ 6 -10 years
- ☐ 11 - 15 years
- ☐ 16 - 20 years
- ☐ 21 - 25 years
- ☐ 26 - 30 years
- ☐ 31+ years

(c) Number of years involved in training apprentices:
- ☐ 0 - 5 years
- ☐ 6 -10 years
- ☐ 11 - 15 years
- ☐ 16 - 20 years
- ☐ 21+ years

(d) How many apprentices do you have currently working with you? _____

(e) How many apprentices have you worked with in the last two years? _____ in 1995
_____ in 1994

(d) Are you self-employed? ☐ Yes ☐ No

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE. PLEASE PLACE IT IN THE REPLY-PAID ENVELOPE PROVIDED AND POST IT BACK TO THE UNIVERSITY OF SOUTH AUSTRALIA.

HOUSING INDUSTRY ASSOCIATION

(S.A. Division)

AND UNIVERSITY OF SOUTH AUSTRALIA

(Centre for Research in Education, Equity and Work)

On and off job sites as learning environments

OFF-JOB PROVIDER QUESTIONNAIRE

This survey is being conducted as part of a study looking at the integration of on and off-job training within the housing industry in Australia. Your assistance in completing this questionnaire would be greatly appreciated. Your answers will be kept confidential. Most questions require you to tick a box or circle an answer. There are some that will require a brief written response.

Questions 1 - 2 are asking you to think about the training that apprentices undertake off-the-job (eg: at TAFE or a private provider).

1.

In your opinion, what is the purpose of off-job training for apprentices in the housing industry?
* Using the scale below, please circle the answer that most represents your opinion.
  Please circle one response for each statement.

PURPOSE OF OFF-JOB TRAINING FOR APPRENTICES	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	ONLY IMPORTANT TO A SMALL EXTENT	NOT AT ALL IMPORTANT
to teach apprentices the basic skills before they go out on-site	5	4	3	2	1
to teach practical skills	5	4	3	2	1
to teach the skills that would not be taught out on-site	5	4	3	2	1
to give apprentices a broad perspective of the industry	5	4	3	2	1
to complement the learning that apprentices do on-site	5	4	3	2	1
to broaden the knowledge and skill base of apprentices	5	4	3	2	1
to learn skills in a non-pressured environment	5	4	3	2	1
to teach theory	5	4	3	2	1

2.

In your opinion, how useful is the off-job environment in helping apprentices learn their trade?
* Please tick the appropriate box and give reasons for your answer in the space provided.

☐ Very useful ☐ Useful ☐ Moderately useful ☐ Only useful to a small extent ☐ Not at all useful

Reasons: _____

_____

_____

_____

Questions 3 - 4 are asking you to think about the training that apprentices do on-site.

3.

In your opinion, what is the purpose of on-site training for apprentices in the housing industry?
* Using the scale below, please circle the answer that most represents your opinion.
Please circle one response for each statement.

PURPOSE OF ON-SITE TRAINING FOR APPRENTICES	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	ONLY IMPORTANT TO A SMALL EXTENT	NOT AT ALL IMPORTANT
to apply what apprentices learn off-the-job	5	4	3	2	1
to teach practical skills in a worksite environment	5	4	3	2	1
to help the trainer/subcontractor in their work	5	4	3	2	1
to build the confidence of apprentices	5	4	3	2	1
to correct previous training done with other subcontractors	5	4	3	2	1
to provide the training that is missed in the off-job environment	5	4	3	2	1
to pass on the trade to apprentices	5	4	3	2	1
to help apprentices get their qualifications	5	4	3	2	1
to correct previous training done off-the-job	5	4	3	2	1
to motivate apprentices to work	5	4	3	2	1
to help apprentices to learn for their future role as tradespersons	5	4	3	2	1
to help apprentices understand the way the workplace operates	5	4	3	2	1

4.

In your opinion, how useful is the on-site environment in helping apprentices learn their trade?
* Please tick the appropriate box and give reasons for your answer in the space provided.

☐ Very useful ☐ Useful ☐ Moderately useful ☐ Only useful to a small extent ☐ Not at all useful

Reasons _____

_____

_____

5.

In this question we are asking for your ideas on two things. Firstly, we would like to know **how important** you think the following issues are in helping to effectively integrate on-site and off-job learning for apprentices. Secondly, we would like to know **if these things are currently happening in your situation**

* Using the scale given please **circle one response** for each item:
  3 = Important 2 = Of some importance 1 = Not important
  Then circle either "Yes" or "No" to indicate if this aspect is currently happening in your situation.

	IMPORTANT	OF SOME IMPORTANCE	NOT IMPORTANT	CURRENTLY HAPPENING IN YOUR SITUATION?	
there is good communication between on-site trainers and off-job providers	3	2	1	Yes	No
formal assessment of apprentices' skills is undertaken on-site	3	2	1	Yes	No
the off-job component is delivered by well trained off-job providers	3	2	1	Yes	No
the on-site component is delivered by well trained on-site trainers	3	2	1	Yes	No
there are opportunities for on-site trainers to have input into the off-job curriculum	3	2	1	Yes	No
there are opportunities for off-job providers to come onto the worksite	3	2	1	Yes	No
there is a clear understanding of the learning needs of apprentices	3	2	1	Yes	No
there is a good relationship between the on-site trainer and the apprentice(s)	3	2	1	Yes	No
there are opportunities for the on-site trainer to find out what happens in the off-job environment	3	2	1	Yes	No
there are opportunities for the off-job provider to find out what happens on-site	3	2	1	Yes	No
overall responsibility for the integrated program is taken by the workplace	3	2	1	Yes	No
overall responsibility for the integrated program is taken by the off-job provider	3	2	1	Yes	No
overall responsibility for the program is shared between the workplace and the off-job provider	3	2	1	Yes	No
assessment and learning resources are available to be used on-site	3	2	1	Yes	No

6.

In your opinion, how **effective** is the present combination of on-site and off-job training for your apprentices?
* Please tick the appropriate box and give reasons for your answer in the space provided.

☐ Very effective ☐ Effective ☐ Moderately effective ☐ Only effective to a small extent ☐ Not at all effective

Reasons: _____

_____

_____

_____

7.

What do you think are the three main factors that **hinder** the integration of on-site and off-job training for apprentices?

1. _____

2. _____

3. _____

8.

What changes do you think should be made to increase the effectiveness of the learning by apprentices in the housing industry?

_____

_____

_____

_____

9.

This question is asking for some background information about yourself.
* Please tick the appropriate box.

(a) Gender ☐ Male ☐ Female

(b) Number of years in the building industry:

☐ 0-5 years
☐ 6-10 years
☐ 11-15 years
☐ 16-20 years
☐ 21-25 years
☐ 26-30 years
☐ 31+ years

(c) Number of years as a trainer/teacher:

☐ 0-5 years
☐ 6-10 years
☐ 11-15 years
☐ 16-20 years
☐ 21+ years

(d) Are you working for TAFE? ☐ Yes ☐ No

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE. PLEASE PLACE IT IN THE REPLY-PAID ENVELOPE PROVIDED AND POST IT BACK TO THE UNIVERSITY OF SOUTH AUSTRALIA.

APPENDIX D
Tables of data (NSW/WA participants)

Table D-1: Numbers and percentages on purposes of on-site training for apprentices—host employers (NSW/WA)

Purpose of on-site training	Very important		Important		Moderately important		Important only to a small extent		Not at all important	
	n	%	n	%	n	%	n	%	n	%
To apply what apprentices learn off the job	33	46	24	33	11	15	4	6	-	-
To teach practical skills in a worksite environment	60	83	11	15	1	1	-	-	-	-
To help the trainer/sub-contractor in their work	11	16	32	46	21	30	4	6	2	3
To build the confidence of the apprentices	36	49	28	38	8	11	1	1	-	-
To correct previous training done with other sub-contractors	14	20	18	26	23	33	12	17	2	3
To provide the training that is missed in the off-job environment	43	59	22	30	8	11	-	-	-	-
To pass on the trade to apprentices	48	66	20	27	5	7	-	-	-	-
To help the apprentices get their qualifications	29	40	28	39	12	17	3	4	-	-
To correct previous training done off the job	17	25	16	23	20	29	10	14	6	9
To motivate the apprentices to work	32	44	26	36	8	11	5	7	1	1
To help apprentices to learn for their future role as tradespeople	44	62	23	32	4	6	-	-	-	-
To help apprentices understand the way the workplace operates	41	57	25	35	5	7	1	1	-	-

Table D-2: Numbers and percentages on purposes of on-site training for apprentices—TAFE teachers (NSW/WA)

Purpose of on-site training	Very important		Important		Moderately important		Important only to a small extent		Not at all important	
	n	%	n	%	n	%	n	%	n	%
To apply what apprentices learn off the job	37	37	44	45	13	13	6	6	-	-
To teach practical skills in a worksite environment	65	63	29	28	7	7	2	2	-	-
To help the trainer/sub-contractor in their work	33	33	32	32	25	25	9	9	2	2
To build the confidence of the apprentices	49	48	35	34	17	16	2	2	-	-
To correct previous training done with other sub-contractors	6	6	23	23	33	33	28	28	9	9
To provide the training that is missed in the off-job environment	30	30	38	38	13	13	12	12	7	7
To pass on the trade to apprentices	54	52	26	25	14	14	6	6	3	3
To help the apprentices to get their qualifications	40	39	28	27	19	19	11	11	4	4
To correct previous training done off the job	2	2	15	15	29	30	25	26	26	27
To motivate the apprentices to work	39	39	30	30	19	19	7	7	6	6
To help apprentices to learn for their future role as tradespeople	56	55	28	27	11	11	5	5	3	3
To help apprentices understand the way the workplace operates	51	49	36	35	11	11	3	3	2	2

Table D-3: Numbers and percentages on purposes of on-site training for apprentices—apprentices (NSW/WA)

Purpose of on-site training	Very important		Important		Moderately important		Important only to a small extent		Not at all important	
	n	%	n	%	n	%	n	%	n	%
To apply what you learn off the job	27	36	30	40	15	20	1	1	1	1
To learn practical skills in a worksite environment	61	80	15	20	-	-	-	-	-	-
To help the trainer/sub-contractor in their work	3	42	18	24	21	28	4	5	-	-
To build your confidence	37	49	25	33	11	14	2	3	1	1.3
To correct previous training done with other sub-contractors	10	13	18	24	20	26	22	29	6	8
To learn things that are not covered in the off-job environment	49	64	20	26	5	7	2	3	-	-
To help you get your qualifications	43	57	24	32	7	9	1	1	-	-
To motivate you to work	20	26	30	39	17	22	7	9	2	3
To help you to learn for your future role as a tradesperson	54	72	18	24	3	4	-	-	-	-
To help you understand the way the workplace operates	40	53	24	32	12	16	-	-	-	-

Table D-4: Usefulness of the on-site environment in helping apprentices to learn their trade—host employers, TAFE teachers and apprentices (NSW/WA)

Usefulness of on-site environment	Host employers		TAFE teachers		Apprentices	
	n	%	n	%	n	%
Very useful	67	92	69	68	66	87
Useful	5	7	20	20	6	8
Moderately useful	-	-	6	6	1	1
Only useful to a small extent	1	1	5	5	-	-
Not at all useful	-	-	2	2	1	4
Missing	-	-	1	-	-	-
Totals	**73**	**100**	**103**	**101**	**76**	**100**

Table D-5: Numbers and percentages on purposes of off-site training for apprentices—host employers (NSW/WA)

Purpose	Very important		Important		Moderately important		Important only to a small extent		Not at all important	
	n	%	n	%	n	%	n	%	n	%
To teach apprentices the basic skills before they go out on site	21	31	25	35	12	17	9	13	4	6
To teach practical skills	13	18	21	29	25	35	8	11	5	7
To teach the skills that are not taught on site	31	43	22	31	12	17	4	6	3	4
To give apprentices a broad perspective of the industry	21	29	25	34	23	31	4	5	-	-
To complement the learning that apprentices do on site	24	33	32	44	12	16	2	3	3	4
To broaden the knowledge and skill base of apprentices	27	37	29	40	15	21	1	1	-	-
To learn skills in a non-pressured environment	13	18	18	25	25	34	7	10	10	14
To learn theory	40	55	21	29	9	12	3	4	-	-

Table D-6: Numbers and percentages on purposes of off-site training for apprentices—TAFE teachers (NSW/WA)

Purpose	Very important		Important		Moderately important		Important only to a small extent		Not at all important	
	n	%	n	%	n	%	n	%	n	%
To teach apprentices the basic skills before they go out on site	55	53	28	27	12	12	7	7	1	1
To teach practical skills	45	44	44	43	12	12	2	2	-	-
To teach the skills that would not be taught out on site	80	78	16	15	7	7	-	-	-	-
To give apprentices a broad perspective of the industry	55	54	33	32	13	13	1	1	1	1
To complement the learning that apprentices do on site	84	82	15	15	4	4	-	-	-	-
To broaden the knowledge and skill base of apprentices	74	72	27	26	1	1	1	1	-	-
To teach skills in a non-pressured environment	32	31	37	36	26	25	6	6	2	2
To teach theory	54	52	29	28	16	15	4	4	-	-

Table D-7: Numbers and percentages on purposes of off-site training for apprentices—apprentices (NSW/WA)

Purpose	Very important		Important		Moderately important		Important only to a small extent		Not at all important	
	n	%	n	%	n	%	n	%	n	%
To you learn the basic skills before you go out into the workplace	23	30	21	28	20	26	10	13	2	3
To help you learn practical skills	23	30	20	26	22	29	10	13	1	1
To help you learn the skills that you don't learn on site	32	42	26	34	11	14	5	7	2	3
To give you a broad perspective of the industry	24	32	26	34	16	21	8	10	2	3
To complement the learning that you do on site	29	38	21	28	18	24	8	10	-	-
To broaden your knowledge and skill base	37	49	21	28	16	21	1	1	1	1
To learn skills in a non-pressured environment	16	21	19	25	25	33	9	12	7	9
To learn theory	35	46	27	35	7	9	6	8	1	1

Table D-8: Usefulness of the off-site environment in helping apprentices to learn their trade—host employers, TAFE teachers and apprentices (NSW/WA)

Usefulness of off-site environment	Host employers		TAFE teachers		Apprentices	
	n	%	n	%	n	%
Very useful	25	34	89	86	27	35
Useful	24	33	11	11	30	40
Moderately useful	15	20	1	1	8	10
Only useful to a small extent	7	10	2	2	10	13
Not at all useful	2	3	-	-	1	1
Totals	**73**	**100**	**103**	**100**	**76**	**99**

Table D-9: Importance of factors in helping to integrate on and off-job learning for apprentices—host employers (NSW/WA)

Factor	Important		Of some importance		Not important	
	n	%	n	%	n	%
There is good communication between the on-site trainer and off-job provider	32	44	33	46	7	10
Formal assessment of apprentices' skills is undertaken on site	37	51	35	48	1	1
The off-job component is delivered by well-trained off-job providers	53	77	14	20	2	3
The on-site component is delivered by well-trained on-site trainers	61	85	11	15	-	-
There are opportunities for on-site trainers to have input into the off-job curriculum	29	40	38	52	6	8
There are opportunities for the off-job providers to come onto the worksite	27	37	36	50	9	12
There is a clear understanding of the learning needs of apprentices	58	81	14	19	-	-
There is a good relationship between the on-site trainer and the apprentice(s)	66	90	7	10	-	-
There are opportunities for the on-site trainer to find out what happens in the off-job environment	30	42	38	53	4	6
There are opportunities for the off-job providers to find out what is happening on site	28	38	43	59	2	3
Overall responsibility for the integrated program is taken by the workplace	28	40	35	50	7	10
Overall responsibility for the integrated program is taken by the off-job provider	17	24	33	47	20	29
Overall responsibility for the program is shared between the workplace and off-job provider	42	60	25	36	3	4
Assessment and learning resources are available to be used on site	29	40	38	53	5	7

Table D-10: Importance of factors in helping to integrate on and off-job learning for apprentices—TAFE teachers (NSW/WA)

Factor	Important		Of some importance		Not important	
	n	%	n	%	n	%
There is good communication between the on-site trainer and off-job provider	86	85	15	15	1	1
Formal assessment of apprentices' skills is undertaken on site	33	33	50	50	16	16
The off-job component is delivered by well-trained off-job providers	100	97	2	2	1	1
The on-site component is delivered by well-trained on-site trainers	82	80	15	15	5	5
There are opportunities for on-site trainers to have input into the off-job curriculum	64	63	35	34	3	3
There are opportunities for the off-job providers to come onto the worksite	59	57	42	41	2	2
There is a clear understanding of the learning needs of apprentices	89	87	13	13	-	-
There is a good relationship between the on-site trainer and the apprentice(s)	72	73	26	26	1	1
There are opportunities for the on-site trainer to find out what happens in the off-job environment	81	79	20	19	2	2
There are opportunities for the off-job providers to find out what is happening on site	81	79	21	20	1	1
Overall responsibility for the integrated program is taken by the workplace	30	30	41	41	30	30
Overall responsibility for the integrated program is taken by the off-job provider	46	46	44	44	11	11
Overall responsibility for the program is shared between the workplace and off-job provider	71	70	26	25	5	5
Assessment and learning resources are available to be used on site	43	42	45	44	14	14

Table D-11: Importance of factors in helping to integrate on and off-job learning for apprentices—apprentices (NSW/WA)

Factor	Important		Of some importance		Not important	
	n	%	n	%	n	%
There is good communication between the on-site trainer and off-job provider	28	37	35	48	12	16
Formal assessment of apprentices' skills is undertaken on site	34	46	32	43	8	11
The off-job component is delivered by well-trained off-job providers	63	84	8	11	4	5
The on-site component is delivered by well-trained on-site trainers	73	97	2	3	-	-
There are opportunities for on-site trainers to have input into the off-job curriculum	36	48	25	33	14	19
There are opportunities for the off-job providers to come onto the worksite	23	31	29	40	21	29
There is a clear understanding of the learning needs of apprentices	55	75	18	25	-	-
There is a good relationship between the on-site trainer and the apprentice(s)	68	91	5	7	2	3
There are opportunities for the on-site trainer to find out what happens in the off-job environment	30	40	32	43	13	17
There are opportunities for the off-job providers to find out what is happening on site	36	48	24	32	15	20
Overall responsibility for the integrated program is taken by the workplace	26	37	37	52	8	11
Overall responsibility for the integrated program is taken by the off-job provider	20	29	34	49	16	23
Overall responsibility for the program is shared between the workplace and off-job provider	38	52	26	36	9	12
Assessment and learning resources are available to be used on site	27	37	36	50	9	12

Learning the Job

This report is produced as part of the national managed program of research and evaluation into the vocational education and training sector.

The publication has been written for those who are:

- teaching practitioners in both public and private vocational education and training providers
- training mentors in workplaces
- developing integrated programs of on- and off-the-job training

The authors are an experienced team from the Centre for Research in Education, Equity and Work (CREEW) at the University of South Australia. They have had a long involvement in adult teacher education and the conduct of research in the vocational education and training sector. Their research expertise and publications focus mainly on adult learning, vocational education and workplace change.

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